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THESIS

The Present Tendency In The Marketing of Apples

ALFRED MILLARD JR.

1915

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THE PRESENT TENDENCY IN THE MARKETING OF APPLES

THESIS

In Fulfillment of Requirements for

Course Nineteen

Department of Pomology

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INTRODUCTION

It is one of the strange phenomena of rapid economic development that we should have bent all efforts on the side of production in the commerce of farm products, and have left the equally important side of distribution to awkwardly adjust itself as best it could. A great amount of energy and scientific research was expended during the last century in this country and abroad toward the most advantageous production of iron and iron products, but it was not until about 1900 that the steel interests of the United States were forced to realize the enormous extravagances of the laterally competitive system of distribution which had grown up, and it was not until this time that a reorganization and combination movement set in, out of which was evolved the vast integrated system of distribution under the United States Steel Corporation that is now a classic example of efficiency for the world. Some such reorganization as this is at hand relating to the distribution of farm products. In all its details, the question of the distribution of agricultural goods differs from that of the distribution of manufactured goods, but in a broad economic sense it is the same.

In this treatise we will briefly trace the history of the marketing of farm products, and comprehend what we can of the new science of distribution and of the factors affecting it. Then we will fit the apple and the farm product to these conditions that we have worked out; find what has led up to the present conditions in trade in apples and other fruits, discuss the amounts and limits and present and possible supply, and go over the nature and extent of the demand; further, we will search into the nature of the apple trade of today, see what it consists of and why, and lastly, by way of conclusion, we will sum up the qualifications of the man who would dispose of apples, and we will hazard an opinion on what chance of success such a man will have.

PART I.

The Distribution of Farm Products

CHAPTER ONE

History and Progress

In remote times there was nothing involved about exchange, one man produced one good and a second man another, barter ensuing between them.* Next there is money and hence a money exchange. Then a trader class, technically a merchant retailer, grew up to conduct the exchange on a larger scale, but still both parties to the commerce were producers as well as consumers. When the merchant retailer later becomes a land holder, he buys and sells more and more, classifying the commerce, and we get the non-agricultural consumer, with increasing steps of wholesaler and retailer, exporter and importer, and lastly, the various forms of commission men and jobbers.

The complexity of exchange has come due to, more than any other one factor, the increased transportation facilities. In farm products especially, transportation has meant markets drawing from wider and wider areas, this has meant regional competition, and this again regional specialization, and this, with the increased production due to the invention of agricultural machinery,

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* Cunningham's History of English Commerce.

has allowed the growth of the great cities where enormous food supplies must be periodically furnished. Tho a very recent growth, refrigerated transportation and storage have intensified this competition and specialization by allowing the carrying over "long hauls" of what were formerly perishable products, only to be locally distributed. Refrigeration has lengthened the season and this is of far-reaching importance; it means the utilization of the surplus of the flush season of production. Transportation and refrigeration may be said to be the essence of the recent changes in marketing, and we shall further consider these under other headings.

G. F. Warren, the author of "Farm Management", tells us that "Very much is said about the marketing of farm products, and yet there is perhaps no subject on which really helpful advice for the individual farmer is so lacking. The reason appears to be that marketing is so much a community or public question and that there is so little that the individual can do." Professor Warren is entirely correct in his belief, and further, a great deal of popular and inaccurate literature is available on this marketing question.which is most confusing; however, these are no reasons why this question should not be attacked from any and all sides.

Very briefly, present systems of marketing farm products in this country may be described as follows.* The simplest method is that in which the producer, delivering in a wagon, sells to consumers in direct contact with them. Producers also sell to buyers in many parts of the United States. Travelling huxters in various regions go from farm to farm buying eggs, butter, poultry, calves, etc., and selling these to shippers, jobbers, or retailers. Agents of large brewers go to the Pacific Coast for hops; travelling agents go to the Rocky Mountain ranges for wool, to Louisiana plantation for rice, and to Eastern orchards for apples; A third system involving the country merchant who furnishes the farmer his supplies and later disposes of the farmer'c crop, turning over to him the difference, is fast disappearing. A large part of the farm products of this country, including practically all of what we know as produce, is sold through commission men. This particular phase will be taken up in more detail later. Direct to consumers' sales have also been accomplished; wool-growers of Montana ship to Omaha and Chicago warehouses, where manufacturers as well as dealers are the buyers. Auction sale, though it has many disadvantages, is often direct to consumer, and examples of this may be found in nearly all lines of distribution -- such a condition is the rule.

This is something of the development and present conditions of our marketing systems; let us proceed to examine more closely a few of the more important factors affecting it.

CHAPTER TWO

The New Science of Distribution

Of the many questions involved in this new science of distribution, we will consider in detail only the three which are at present most before the public eye and which also happen to be the most significant. These three are the highly theoretical ones of the middleman, and of co-operation, and the more or less technical one of transportation and refrigeration.

First, as to the middleman controversy, on which current writers are spending so much time. The American farmers in the main today are subservient to the middleman, in so far as to the price they must accept at their particular market, but none the less so are manufacturing producers, whose only market lies in the halfway stage of the middleman's field and lies in one or in a few centers. Certain big manufacturers, notably Kellogg's Toasted Corn Flakes Company, have fought their way through the middleman's lines and now sell at their option to consumers direct. In all its details the question of distributing farm products is very different from that of distributing manu-

factured goods, but in a broad economic sense it is the same.

The development of the middleman has come with the development of commerce. As we have seen, above, distribution is simple when each community produces its own food, and hence we have no middleman till the 18th century, and no marked development till about 1800. In the nineteenth century came the better transportation, and in the last few decades came refrigeration. One farm family now feeds five to ten other families, where forty years ago, without the recent farm machinery, they were able to feed but two; villages have changed to towns, and enormous cities have developed. This has instituted new lines of commerce, and from this commerce has normally evolved the middleman. In all parts of the nation the city is growing apace. In no state in the Union, from 1900 to 1910, did the urban population increase less than 10%, and in nineteen states over 50%. In six states the rural population actually declined, and in six states the urban population more than doubled. That the middleman should have grown up is not unnatural; it is entirely normal; but that this branch of trade should have been allowed to develop to its present complexity without any attempt at regulation can only be explained by the habit of the American public to allow the growth and crystallization

of awkward commercial aspects before anything is done toward interference.

Until 1880 there were few jobbers, while now they tend to replace the commission man. In the early days there was too much risk in buying outright -- there were no standards or grades, and the mutual bad faith of agent and shipper forbade any sort of confidence or trust in trade. This developed the agential seller, the man who disposes of another's goods at whatever the market brings, with no risk to himself and with a percentage profit, whether he sells for high or low prices. This form of selling is known as commission. The jobber, the trader who buys and sells outright, grew at first through the practice of purchasing in the field, with no standards or grades, and later through the growth of definite individual relations, which amounted to a standard. All sorts of individuals and concerns have functioned as middlemen. Commission and jobbing selling have been interchangeably practiced and the combination of the two is still quite common. In general, uniform and rising prices tend toward jobbing selling, and over-supply and falling prices tend toward commission selling. In the first case the producer is able to insist on the maximum price and its benefit; in the second case the farmer is forced to sacrifice his goods

at anything the market will bring. The first is the farmer's advantage, and the second, the dealer's. Now jobbing is becoming the rule, except with very perishable products, at the leading "primary", large city, markets in normal years. There is a tendency for commission sellers to take over the lower grades of produce where jobbing does go on.*

The selling aspect of jobbing involves the disposal of regular supplies to the well-developed trade and of additional produce at surplus times. With commission the same holds true, with generally less steady trade and more of the day-to-day disposal. The variation in demand and supply is influenced by many factors. The weather at both ends may cause a surplus or scarcity in often not more than a day's time. Formerly the vendor aided greatly in this disposal of surplus, but the development of standards and grades, with the consequent education of the housewife and the growth of the strong prejudice against this very unreliable salesman, have practically done away with him. The seller may, and often does, depend on "elastic prices", increasing demand by lowering price,--he may cut the prices considerably when he finds a sur-

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* C. W. Thompson. Investigator U. S. D. A. Annals Amer. Acad. of Pol. and Soc. Sci., Vol. 50.

plus on hand. This is usually effective, but here we find one of the serious obstacles imposed by the members of the next class in the system of distributing, the retailer, and this class is by all odds the most cumbersome one of all. Retailers will often see fit to thwart the wholesalers' elastic demand plan by buying from the jobber at the lower price, but holding the consumer's price constant, and thus not allowing any increase of demand. The seller may finally attempt to go over the head of the retailer, and here we find the assistance to every one concerned that is offered by organized co-operative consumers' buying associations. In 1913 in New York City an enormous number of eggs were disposed of through the agency of the Housewives' Leagues under just such conditions.

The functions of the intermediary may be listed as* sharing the risk, transporting the goods, financing the operation, selling, assembling, assorting, and reshipping. When we consider the "eliminating" of the man who performs these functions, what is to happen to the functions ? We cannot eliminate the middleman under any circumstances, but under exceptional circumstances we can, in part at least, be the middle-

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* Professor Turner, Course 67, Dept. Political Science, Cornell University.

man. This will involve standard grades and qualities, knowledge of market requirements, suitable shipping facilities,* and general attention to the details of the system. This is largely impractical and will limit direct shipment to only a fraction of the produce business. To dispose of regular supplies to a well-developed trade might not offer insurmountable difficulties, but the disposal of a surplus requires the equivalent of the middleman's machinery.

In the movement toward simplifying distribution as regards the middleman, there is a side which has so far been remarked upon by one or two economists. This side indicates the direction from which a good part of the wind blows and it should be carefully borne in mind. In simplest terms, it is the taking over of certain functions of the intermediary by interests not primarily a part of distribution. Storage houses are loaning money where the jobber formerly held the notes. This is known as functional distribution.

Earlier in this article it has been hinted that the middleman in our marketing was inefficient, and this is true of the class in the aggregate, but not at all so of the individual. Any one even barely acquainted with

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* The Parcels Post can hardly be over-emphasized in this particular connection.

this branch of the business will vouch that the individual commission man is about the keenest and most industrious man in commerce and that he does business on the closest possible margin. This and this only is what the commission man looks at when he claims to be abused and when he refuses to consider the number of millions paid by the consumer compared to the number received by the producer.* The following article, published in the Chicago Examiner on Friday, Jan. 1st, 1915, is the best defense of the commission man** of which the writer knows, and it is given entire below. This article was inserted as an advertisement in this daily by the dealers of South Water Street, Chicago, in an effort to win back the elusive "goodwill" of the public. It is entitled "Feeding a City."

> "Three million people depend on the eight short blocks of South Water Street for the greater part of their daily food. These eight blocks, with the adjacent West Randolph and Fulton Markets, do a business of approximately three hundred million dollars a year, and in doing this business they handle the second largest business in Chicago. It is natural that when the food prices are high, such a centre of supply should receive the attention of the multitudes of people who depend upon it. It is natural that the solution of the problem should be sought here first. It is the purpose of this article, therefore, to give you some understanding of the business done on this street and the method of doing it. Into this

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* See table 25 appendix.
** The International Apple Shippers' Association plans to distribute several hundred thousand copies of this article in the next few months.

street come daily hundreds of tons of practically everything you eat, except meat and bread. It is a street that begins its activities before daylight and ends them after dark; a street that must open with a full supply and close with an empty store, because most of what it sells is perishable. It has sometimes been said that we enter into combinations to raise prices. Please ask yourself and answer for yourself this question, and that idea will be laid to rest for all time. If you had a house that was going to burn down tomorrow, how much time would you spend on a price combination today, and how long could you stick to it after a fair offer has been made ? This is practically our situation in most of the products we deal in, in our strawberries, in our peaches, in our grapes, in our vegetables. And no business or group of business that deals in perishable products can ever form a combination to increase prices. Even if such a combination were formed, it could not be successfully maintained for twenty-four hours. If cabbage is going to rot tomorrow, you are going to sell it today and you are going to get whatever price you can as soon as you can get it. It is true that we have cold storage, but with very few exceptions cold storage is used as a last resort to prevent a disastrous price rather than as a first resort to secure an exorbitant one. Next, the profits made upon South Water Street are often harped on. It is a fact, and we consider it an unfortunate fact, that in the sixty odd years of this street as a produce center, not a single large fortune has been made out of it, whereas in other centralized sections of the city, such as the banking and the retail, etc., you cannot count the millionaries on the fingers of your two hands. The average net profit of this entire enormous business is less than 1%. It is one of the smallest profits in the business world. Where does the money go -- what is the reason for the cost of living -- why are proces so high ? Let us take some staple product and find out. Take potatoes, which are the least perishable,- take a good grade of potatoes, for which the farmer gets 30¢ a bushel; then here is your schedule :

TABLE I.

Farmer gets	per bu.		30¢
Trader "	"	"	05
Freight charges	"	"	08
Commission merchant	"	"	02
Bag	"	"	03
Cartage and labor	"	"	04
Jobber	"	"	05
Grocer	"	"	20
Total			77¢

The farmer gets 30¢ and you pay 77¢; there is 47¢ profit between the time they left his potato patch and the time they reached your kitchen. And out of this the commission merchants of South Water Street, who ran practically all the risks, got 2¢, and this is his gross profits and not his net. But even that profit is not exorbitant except when you consider it separate from manufactured things. There is hardly a product on the street that is not selling at a lower price than in years. All of these are legitimate processes on legitimate products in getting the goods to you and they represent legitimate labor. But people are accustomed to think only in terms of a first cost of a food product, whereas they never think in such terms about anything else. You pay $25. for a suit of clothes, which cost less than $15. to make; you pay $40. for a sewing-machine of which the factory cost was less than $10.; you pay $90. for a typewriter of which the cost was less than $20.; and in all of these things you never consider the intermediate expense. But in food products most people are prone to forget the same intermediate expense exists. How, then, can I lower my cost of living, you ask. There is one way that is worth considering. There has come into the living of the twentieth century a feature which has proven disastrous. That feature is the public's constant demand for the best. Everybody is demanding the best apples, the best celery, the best fruit,and the earliest, the best poultry, and the largest eggs. Nature goes on producing all kinds of food,- good, bad and indifferent,- in about the same proportions; but when you demand the best, the effort of every one, from farmer to grocer, is bent upon giving it to you, or at least making it seem like the best, and

> untold efforts are spent upon making your purchases look pleasing to the eye. For example, it cost 45¢ to pack a barrel of apples; it could be done for 5¢ if the apples were merely poured into the barrel. But they must be packed as carefully as china and packing costs. It costs 40¢ for the barrel to ship those apples in, whereas an open-headed barrel, with a sack tied over it, could be made for 15¢. A potato used to be just a potato. Now we have many grades of potatoes. They are even sized, like peaches, to please your fancy, your celery is crated, and your turnips are washed. Turnip-washing has become a big business in this present day. One way to reduce yuur living is to go oftener to your grocer and use your telephone less, and to remember that a small apple tastes as good as the big red one wrapped in tissue paper; that a potato is still a potato, and that size does not alter the taste; that putting a turnip thru an electric washing machine does not alter the flavor, tho it does the price. All these things you get because you demand them and all of them cost money. Everybody is bent on giving you what you demand. Even the putting of the large berries on top is an effort to make the crate look "nice"; because nicety is what you pay for. Probably the largest factor in this high cost of living is because the public keeps buying to please its eyes instead of its palate. In conclusion, let us say that supplying a city with food is practically the only rigidly competitive business that is left; really the only remaining business that is governed by the laws of supply and demand. Aside from the problem of transportation, which so far has received no constructive action, South Water Street could hardly supply you at a lesser cost."

The writer has been vehemently told by commission men that their system was the only one that could exist under present conditions, but nevertheless firmly believes that any step toward direct shipment to consumer, or any sane organization of market, or any cautious attemot toward marketing on the part of the producer is a decided advance.

This brings us to the discussion of co-operation. Co-operation means organization, unity of action, and all that goes with intelligence and strength of federation, as compared to the weakness of the individual. Co-operation is not laissez faire, and if we want the logical result of what we can smoothly call "healthy competition" reduced to the individual, we will have a survival of the individual fittest and not at all will we have co-operation. Co-operation has already meant much; through it have come some of the most important economic advances in marketing. The possibilities of co-operation are very great; it is, indeed, entirely conceivable that there may develop producers' trusts, for, remote as this must seem, it is in this direction that we are pointing. It is interesting to consider that the public-spirited consumer, in his effort to get better returns for the farmer, does not seem to realize that he is the one who must pay these better returns.

Co-operation may be considered as consumers' or as producers' co-operation. We will try to understand which shall come to the other, or if both producer and consumer are to act where they shall meet. We will first take up consumers' co-operation. The steps in

consumers' co-operation may range from Housewives' Leagues. purchasing units of Women's Clubs, etc., to our old friend, the municipal market. An example of the fortunate use of the Housewives' Leagues of New York City has already been given, and a number of other examples might be cited. There have been co-operative stores established; one is more or less flourishing now in Hyde Park, Chicago.* But there is no ground to believe that there will be anything like considerable progress in this quarter, unless the temper of the American public changes entirely. Let any one, who doubts this, attempt to organize a few families on his street into the buying from a single milkman. Unquestionably the milkman would be able to save in cross-deliveries, etc., enough to furnish better milk at better prices to the benefit of every one concerned. The man who attempts this organization, however, will not be successful; his indignant neighbors will inform him that they reserve the privilege of buying where they see fit.

This subject should not be left without reference to co-operation abroad, notably in England.** The co-operation movement in England involves more the commercial side to those actively interested in the organization,

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* Under the U. S. Co-operative Company of Chicago, etc.
** Annals Amer. Acad. Pol. and Soc. Sci., Vol. 50, p. 235.

and it is not entirely analogous to corresponding current movements on this side. However, it is well worthy of note that the English Co-operative Wholesale Society has conducted a trade of fifty-two millions of dollars in the last twelve years.

Chain stores, privately owned and operated for profit, offer the best partial solution of the wastes of small crossing and competing produce stores. In Louisville, Ky., there may be found an example of a chain store system where, with cash payments, there has been worked out a most efficient and noteworthy example of this.

Municipal markets were the rule in every village and city in the United States before 1850.* Later, development of private industries absorbed from public industries and these markets, in most cases, ceased to exist. Professor C. L. King, of the Wharton School of Commerce and Finance, at the University of Pennsylvania, notes that in 1906 only twelve cities in this country spent $10,000. or more on their markets. Municipal markets do not develop themselves, because the produce man, who is the only one immediately interested in the matter, can do better without the markets. Markets are not at all unheard of in this country, however. Mr. John W. Farley, the Chairman of the Committee on

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* Clyde Lyndon King, Wharton School, Commerce and Finance.

Investigation of Municipal Markets, of Memphis, Tenn., undertook two years ago a questionaire on public markets, which showed, more than any other thing, that our markets were in the experimental stage and that there was no uniformity whatsoever in their establishment. In a few cases markets are privately owned, the market superintendent is almost universally underpaid and often he is but a head janitor. Usually it is only the local produce that is sold to any great extent, and with the negligible exceptions the markets are wholesale in nature. Much has been written concerning the public markets in Europe. Stadtrat D. Levin, Member of the Magistrate, Frankfurt, Germany, has written in Volume 50, Annals Amer. Pol. and Soc. Sci., the most comprehensive and enlightening article on this point of which the writer is aware. From this article we can surely learn that rather in the examples abroad, where the markets have been in existence for from twenty to a hundred and more years, than from the examples in this country, such as the much discoussed New York markets, which are at the present writing five months old; we will find what we may learn of precedent in the matter of public markets. Berlin has a seven million dollar market, and the Paris market cost ten millions. Both these markets are purely wholesale and are successful, while retail markets, which were estab-

lished in both cities some time ago.- fourteen branch markets in Berlin and thirty-seven in Paris,- have now practically ceased to operate because they failed to compete with the small, private retail stores.* This has been the universal experience with public retail stores. The private grocer can establish his own trade, can work up a business through the individual fancies of his customers, etc., that seems to insure the small private retail store as an institution of permanence.

To sum up,- consumers' co-operation is very limited. Municipal markets will certainly make for efficiency as far as the wholesale side is concerned. Probably the greatest advance in wholesale markets in this country, now in sight, would come with the saving of trans-shipping when rail and water transportation facilities and cold storage are made an adjunct to the market. Public retail markets are not practicable. Chain stores have great possibilities. When we get down to the smaller units -- in the household, we find further difficulties in intelligent buying. Our households are only furnished with small refrigerators, etc., and are accustomed to the day-to-day improvident city habits, if possible they all buy food for their eyes,

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* Hon, Cyrus C. Miller, Chairman Mayors' Market Commission, New York City, in "American City" for April, 1913.

and most important of all, the great majority of the consumers are forced, through insufficient means, to buy unwisely. We seldom realize what a large proportion of the population must buy one loaf of bread at 10¢ when they well know that they can get three loaves for 25¢.

There is no lack of remarkable examples for producers' co-operation. The classic example of this, perhaps, is that of the California Fruit Growers' Exchange, which has undoubtedly carried the California farmer through a very precarious period. Report No. 98, of the United States Department of Agriculture, gives over sixty examples of deatiled reports from co-operative associations. Specialized farmers have best been able to combine, but there have been examples of general co-operative societies. such as many of the more progressive farmers' granges throughout the country, and on a larger scale, in such cases as that of the Monmouth County (N. J.) Farmers' Exchange, where, though potatoes are the major crop, many other lines are entered into. There are, to be sure, no lack of examples; the danger is that we will consider these individually instead of collectively. They have done much; the movement is without doubt growing, and it is

hard to estimate the untimate extent of this phase of marketing. Certain circumstances are essential for co-operation. Mr. George K. Holmes, in Report No. 98 above referred to, hits upon the essence of the whole matter when he says : "There are economic advantages in this (co-operative) system of marketing which bring substantial returns to the co-operators under good management and under conditions which permit success." Mr. Holmes grants the idea as effective, but he qualifies it as requiring good management and certain external conditions. We need not go far to find co-operative societies that have been mismanaged, where the men in charge have bent their energies on increasing and maintaining their own salary to the neglect of the business, the head of which they occupy. The writer knows of a concern, nominally of a co-operative nature, which markets units of fruit at a charge of 10¢ per unit, and which delivers this fruit into the hands of city dealers exactly as though it had been handled by individuals. This 10¢ is thrown away. Much more often the case is of an intelligent and honest, though more seldom, an able or experienced man, who is so hampered and restricted by the members of the society which he represents that he is unable to produce any sort of efficient work. Co-operative marketing requires a

considerable crop to pay the necessary charges of association. A prominent official at Washington has recently recommended in a public speech the organization of the entire rural community of this country into small units, which were to conduct all sorts and every sort of marketing practice, from designating to the farmer what he should plant to the watching and telegraphic advising of the markets of the world. The reasoning that prompted this is not entirely sound; the units would not be large enough to bear the expense. Concerning Mr. Holmes' second qualification of "conditions which permit success", we need only realize that, should it develop that Florida citrus growers could put fruit in New York City at a considerably lower cost than could the California grower, some 2,000 miles farther from this market, of what avail would be the splendid organization of the California Fruit Growers' Exchange under Mr. Powell ?

Concerning transportation and refrigeration we need only touch upon a few phases. Ivy L. Lee, of the Pennsylvania Railroad Company, after describing in a most interesting manner the development and position of the railroad in the transportation of produce, says :

"Any reduction in the cost of distribution must in the immediate future develop out of more economical methods of packing, handling and marketing. The railroad transportation costs can hardly decline as long as the costs of railroad operation continue to increase. The gain must really be derived from the removal of economic wastes." Mr. Lee's position can hardly be disputed in the light of recent railway rate legislation. Whoever the culprit may be, if there be one, he is not the railroad.

Rates, then, can hardly be lowered, but the moderate regulation of them is most certainly a public duty and is exceedingly important in distribution. Rates should be fixed so that the traffic will move, or in other words, at a rate that "the traffic will bear". Canteloupes and coal must be carried greater and less distances at higher and lower speeds with a complexity of interrelation of costs that forbid any but the most expert tampering. A car of strawberries loses $5. to $10. an hour in transit -- they must be moved rapidly. Fast freight is a recent development; the first shipment of early vegetables made in this country was by boat,- Norfolk, Va., to New York City in 1855. The intricacy of moving fast freight, or "preference" freight, as it is technically called, is exceedingly elaborate. Re-

frigerator and ventilator cars must be on hand on time and must move without delay. The writer has seen a carload of boxed apples on Pier 20, New York City, which had been frozen in transit. The loss falls upon the railroad carrying them, and we may be sure that efforts were made before that carload was allowed to freeze.

To quote Mr. Lee Again,- "The railroad can and should assist with every means in its power in the secrring of all products to just where they can be consumed. More accurate adaptation of the transportation service to true market conditions, the spread of information as to market purchasers and sellers, and the elimination of unnecessary stages in the movement of goods from the producer to the ultimate consumer, should embrace those lines of experiment and study along which future development will doubtless proceed."

The subject of refrigeration is an interesting one, as interesting as any in the whole question of distribution. The influence of this factor is the one most strongly felt at present, and it is, since it has but recently been a factor at all, one of the most undefined and least known of all the factors affecting present marketing. That its influence has been enormous is evident, but how much further this influence is to go is a question. *The average price of best creamery butter in

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* Ice and Refrigeration Blue Book, Nickerson-Collins Co., Chicago, Ill.

New York City for flush production months (June, July, August) during the period 1880-1890, when there was but little or no refrigeration, was 20-1/4¢, and for the short production months (November, December, January) was 33-3/4¢. The corresponding prices from 1900-1910, when comparatively ample storage facilities were available, were 22-1/4¢ and 25-1/2¢. We need but try to conceive of the amount of butter used in New York to realize what this change has meant. Fairly accurate statistics on storage facilities in this country are available. In the "Ice and Refrigeration Blue Book", (referred to by note above) these statistics may be found, but they cannot convey any accurate idea of the influence of the business. The following figures from this source are as indicative as any :

Table II.

Value citrus fruit handled yearly	$45,000,000
" apples held in cold storage	15,000,000
" peaches, pears, grapes, etc.	30,000,000
" bananas refrigerated (estimated)	20,000,000
Total	110,000,000

The following table gives the apples in storage December 1st, 1912, in the cities holding over 75,000 barrels. These figures are taken from Bulletin 48, Bureau of Plant Industry, U. S. D. A.

TABLE III.

Chicago	431,700	bbls.	Boston	102,000	bbls.
New York	200,000	"	Indianapolis	100,000	"
Philadelphia	200,000	"	Leroy, N. Y.	90,000	"
Rochester	150,000	"	Brighton	90,000	"
St. Louis	120,000	"	Albion	86,000	".

Further discussion of refrigeration is not necessary here. It is a subject which should be studied at length by producers of fruit and of other perishable farm products. There are certain to be many changes in this phase of distribution, and the man aware of these changes is the one who will reap the immediate benefits to be derived.

CHAPTER THREE

The Markets and Marketing

Markets may be viewed as domestic, local, unclassified and primary, and foreign, and we will consider them in this order. There will always be producers who market locally to advantage in normal years. This is a question of getting the trade -- some one sells the nails consumed in Western Pennsylvania. Local is a comparative term, Portland, Ore., is local to Northwest fruit. The writer has been told by residents of Portland that they were unable to buy the best quality of apples. The reason for this is that the lower grades of fruit are so easily available to the market in this city that they bring down the price of the best grades below a profit to those concerned, and the best quality apples are not extensively sold. Unclassified markets may be said to include all markets between the local market of the individual producing farmer and the markets we know as primary in the few great centers of population and consumption. Unclassified markets will then include all but the largest cities of the Northeast and all but a very few of the cities of the rest of the country. In the most inclusive sense, all towns im-

porting any considerable produce in addition to that brought in by nearby farmers (locally marketed) would fall in this second class. This leaves the cities of the largest size, and especially those which act most as produce centers, for the third class of domestic markets -- the primary market.

It should be admitted at the outset that this classification is purely arbitrary and that it has only the object of clearer picturing of the disposal of crop products. St. Paul and Minneapolis play a part in wheat trading that they do not begin to equal in any other line, the Southern cotton centers are in many cases exceedingly small markets for other goods, and long carried products, such as Pacific Coast citrus and pomaceous fruits, seek certain cities which act as distributing centers even more than as consumers. Thus Rochester, N. Y., is among the largest apple markets of the East. The primary market, in one sense, includes the markets that we have termed uncalssified, for, in a large degree, these smaller centers are supplied from, or at least through, the primary cities. Farm products seek the consumer; a comparatively small number of consumers are found at the farmer's door, and the other consumers must be shipped to over rail or water. Of these distant consumers, a fair proportion are in smaller

cities and towns, but most of them are in or close about some Eastern metropolis, and the few large Western centers, and thus these primary centers, in one way or another, handle a large amount of what eventually reaches the unclassified or secondary markets.

Of foreign markets in general it is unwise to attempt to say much -- this is a question that resolves itself into entirely different systems and conditions with a particular crop in mind. Foreign apple markets are taken up in some detail in Chapter Seven. This country, as every one knows, is a strongly exporting agricultural nation, though with our soaring population, we are becoming less and less so. The attempt to attack foreign market problems involved every difficulty from straying mail to international diplomatic relations, and only a very strong body and one controlling a large amount of exportable goods can suitably enter into this commerce. These conditions have brought about the very necessary exporters, with complicated foreign exchange facilities, and this exporter class should and will continue. However, we can probably look for simpler and simpler over-the-water trade relations, and such movements as the recent agitation in connection with the development of South American markets for the output of this country, show a field for effort and show a noteworthy example of attempt in this direction.

In Chapter One we went over briefly the current marketing methods in the United States, and in Chapter Two we have discussed some of the more important factors affecting the whole of distribution; by way of summary let us see in what direction the changes seem to point. The changes that have occurred in marketing are all traceable to the specific development of some factor affecting marketing. The present aggregate business of New York City dealers in Southern early truck is very large, yet this has only grown up with the fast produce freight development. We have seen what refrigeration has done and we can see, on a somewhat larger scale, the effect of one of these influencing factors in the adaptation to the low prices of the 90's following the over-rapid growth of the grain and stock Middle West. It can hardly be logically assumed that *"idiotic" commercial situations exist for any time, as some current writers insist on believing. These situations depend on fundamental economic forces, and with a change in these forces there must be a change which will line up the commerce to fit the new environment. Population, wealth per capita, area of arable land,- such forces as these are the dominating ones.

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* See table 25 and note.

The writer thoroughly believes that much is to be done concerning the details of the intermediaries in the produce and the related trades, but statements characterizing these intermediaries as hopelessly unfit show their fallacy when one realizes that this class could not exist if it were more than a little behind the economic development out of which it originated. Not the greatest marketing tendency at the present time, but the evidence of this tendency is the public interest in the matter of waste of distribution. This interest is not original, it merely voices largely illogical ideas aroused by tendencies which have been at work some time before the interest was at all aware of them. This public interest should be vigorously encouraged, and moreover, it should be educated. The public interest is what brings action, investigation and legislation, and though mistakes will doubtless be made, even with a higher degree of caution than will probably be practiced, it is after all, and in spite of what cynical, far-sighted critics of economics may say, the public that must understand and act on the conditions which affect them. We can look, then, for marked changes to come -- marketing should become simpler and more efficient in entire system, though further urban growth must force greater complexity of detail.

We are in a transition period in distribution -- the old, the intermediate and the new are mingled -- a good deal of public thought and a very little public action will bring about invaluable results.

PART II.

The Apple as a Farm Product.

CHAPTER FOUR

History and Present Status of the American Fruit Trade

Apples are mentioned in some of man's earliest writings, and apples were planted by American Indians before the middle of the eighteenth century*. We are, however, only concerned with the development of the commercial side of the apple industry in the United States, and correspondingly with the history of the whole fruit trade.

One hundred years ago practically no fruit was imported into this country; only an occasional cask of Mediterranean prunes, raisins or grapes found its way across the four weeks of water as a very great luxury through the agency of the larger importing merchants of the colonies, and later of the young republic. Even the seasonal selling of the fruit of nearby farmers in cities was not practiced until early in the nineteenth century, and once at this point the trade stood still until about 1830. In 1832 a cargo of oranges arrived from Sicily, and this shipment was followed by a growing commerce in Italian oranges and lemons for thirty years, during which period these fruits held full possession of the

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* The writer has seen a specimen of these early plantings at Geneva, N. Y., which is said to be 125-150 years old.

American markets. About 1865 wholesale commission fruit houses came into existence, and Italian fruit began to come, consigned to these firms, but about 1880 branches of the Italian concerns were one by one established in New York City and elsewhere, and these branch houses have since controlled the Mediterranean fruit trade here.

There was practically no competition by domestic fruit for the American trade till 1867. Oranges and lemons, grapes, raisins, currants, and prunes, fresh preserved and dried, found only the Yankee apple as American-raised fruit. Even West Indies bananas and pineapples were not shipped in enough quantity to disturb the complete monopoly of the Mediterranean fruit. In 1867 the first car of green fruit from California reached New York, and from then our domestic sub-tropic fruits rapidly took over the United States markets. Lemons from Sicily still find a strong market on account of their flavor, and this, with the banana, rapidly growing in consumption, will always figure heavily in our fruit imports.

The phenomenal development of the banana trade is worthy of some note at this point. The schooner "Reynard" was the first West Indian "Fruiter" when it

brought, in 1804, to New York City the first thirty bunches delivered there. Small quantities were subsequently imported, till in 1830 a man named Pearsall landed 1500 bunches, the first considerable shipment. Banana imports grew quite slowly, till 1880, at which date they were listed for the first time separately in the importation reports. Since 1880 the growth of the banana trade has been enormous, and American growers feel the pressure of this competition in more ways than most of them realize. The banana is the "poor man's fruit". In 1912 the continental United States consumed 44,520,539 bunches, or over 60 bananas for each man, woman and child in the Union. These bananas came from the various small countries bordering the Carribean Sea; Jamaica leading with 15,467,918 bunches of the above mentioned imports. Of the entire banana crop of the world, the United States consumes nearly all, 85%, and the remaining 15% is controlled and to a large degree re-exported by the United Fruit Company and a few other concerns. European taste for the banana is being developed, the area available for the production is literally unlimited, and the banana is a most important competitor of any fruit produced in the United States.

Strangely enough at first thought, but logically when we consider that we were then the colonies of

an empire which expected to receive and not to give the luxuries of food, we find records of fruit export earlier than of import. This trade began with the apple. There is record of apple shipment to the West Indies in 1841, and the trade probably existed for some time previous to this date. Benjamin Franklin in London was sent a package of Newtown Pippins from the 1758 crop, and the sight and taste of these resulted in quite a trade. There is a letter on file*, written in 1773, stating that the English apple crop had failed and that the market was being supplied by American apples. This letter reads : "They (American apples), are notwithstanding too expensive for common eating, being sold for twopense, threepence, and even fourpence an apple." The apple has always been the commercially ranking export fruit of this country. Shipments of ice from the New England ports to the West Indies, which began in 1805, were accompanied by large quantities of apples, and soon after the extension of the ice trade to India and China, which occurred in 1830, apples could be had in the ice ports of these countries. Statistics do not exist prior to 1821, when the Treasurer reported an export of 68,443 bushels of apples, valued at $39,966.

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* The younger Collinson, writing to John Bartram, "Better Fruit", Vol. IX, p. 10.

In the "Transactions of the American Institute"* it is said that Boston fruit dealers had shipped apples and cranberries to Europe for many years. "In 1845 Newtown Pippins from the orchard of Robert L. Pell, of Ulster Co., N. Y., which contained 20,000 trees, sold in London for $21.00 a barrel." Virginia apples were also exported about this time. The Eastern States still furnish a large part of the apples exported, but shipments from the great orchard districts of the Mississippi Valley and of the Pacific Coast now are a very large factor. New York City has always held the lead in apple exports of North America, in 1812-13 the approximate percentages of the barrels exported by the various cities were :- New York, 32%; Boston, 16% (some few Canadian apples included); Portland, Me., 105; Halifax and St. Johns, 30%. Boxed apples exported in this same year from the Atlantic seaboard were apportioned : New York, 93%; Boston, 6%; and Portland, Me., 1%. The various apple importing cities of Europe are elsewhere taken up under foreign markets.

Apples comprise by far the greatest amount of our fruit exportations, but various other fruits,- cranberries, peaches, plums, prunes, pears, grapefruit, oranges, etc,,- are also sent out. The supply of all but the first

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* 1843, p. 125.

fruit comes in the main from California. In 1912 over two million pounds of apricots and peaches, over ninety-one million pounds of pears, and over six million pounds of plums and prunes were exported to England. Canada imports considerable quantities of our tender fruits, and most of the countries of Europe, excepting Russia and those bordering on the Mediterranean, import some of our fruit. Dried fruits are also exported in large quantities, the fruit dryer was perfected between 1870 and 1875. Belgium imported in 1912 $310,000 worth of our dried apples, apricots and prunes, and Austria imported about a million and a half pounds of various dried fruits. France imports much, but her orders depend entirely on her own crop. Germany imports a great deal, but Italy, Norway, The Netherlands and Russia import but little dried fruit. England imports in quantity only prunes and plums, of which in 1912 she took twenty-nine million and a hundred and fourteen million pounds respectively. Japan, China and India import very little dried fruit, although there may be a limited field for further exploitation there. Australia does take some of our dried apples, though this commonwealth exports the first fruit in quantity. There is a very bright promise for increase in the dried fruit trade with South America

We have seen above that there was no domestic competition for the fruit trade in the United States until after the Civil War, except for the poorly developed apple industry and the even less developed small fruit trade from Long Island, New Jersey and Delaware. Exceptions to this condition were occasional boatloads of watermelons, etc. from the South. After this time the growth of intra-state commerce in fruits was very strong and very rapid. *The planting of commercial apple orchards did not receive much attention until 1825, although Robert Pell was already exporting Newtown Pippins. Gradually summer, early and late fall apples became customarily shipped down the Hudson to New York. These apples were often sold by the steamboat captains who carried the fruit to the city. Heavy plantings in Western New York followed the completion of the Erie Canal, which opened in Western New York one of the greatest fruit regions of the world. The 1867 shipment of California to New York City was a failure as regards condition of fruit and prices received, but the idea remained, and pears, peaches, Tokey and other grapes, and later oranges and lemons followed this first shipment. This state is today easily first in green fruit production, though prior to 1893 but 5,000 boxes

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* According to U. D. Barnes, of Middlehope, N. Y.

in all of California fruit had ever been sold in New York. Florida oranges entered the market shortly after this first California shipment, and now the more rapidly citrus industry in California has outstripped the orange industry in Florida. Florida, however, has the grapefruit, and the two states are keen competitors in the production of domestic, tropical and sub-tropical fruits of all kinds. Early fruits with vegetables are controlled by the Gulf States, and specialized fruit industries have sprung up in the Rocky Mountain and North Pacific States.

The following two tables show the 1909 values, acreages, etc., of small and orchard fruits in the United States :

Table IV.

Small Fruits in the United States, 1910 Census

	Total Value in 1909	Production in 1909 (Quarts)	Acreage	Relative Value %
All small fruits	$29,974,481	426,565,863	272,460	100
Strawberries	17,613,926	255,702,035	143,045	58.8
Blackberries	3,909,831	55,343,570	49,004	13.0
Raspberries	5,132,277	60,918,196	48,668	17.6
Currants	790,431	10,448,532	7,862	2.8
Gooseberries	517,034	5,282,843	4,765	1.8
Other small frts.	1,810,982	38,870,687	19,116	6.0

Table V.

Orchard Fruits in the United States, 1910 Census.

	Total Value	Production (Bushels)	Increase over 1899 (%)	Relative Value (%)
All orch. crops	$140,867,347	216,083,695	1.8	100
Apples	83,233,492	147,522,318	15.9	59.1
Peaches	28,781,078	35,470,276	133.0	20.4
Pears	7,910,600	8,840,733	33.4	5.6
Plums & prunes	10,299,495	15,480,170	76.6	7.3
Cherries	7,231,160	4,126,099	43.6	5.1
Apricots	2,884,119	4,150,263	57.1	2.0
Quinces	517,243	428,672	---	0.3

The acreage of all classes of small fruits decreased between 1899 and 1909 from a total of 309,770 to 272,460 acres, or 12% ; likewise the total production was 7.9% less. The only crop with increased production was cranberries. Small fruits in general are grown rather uniformly throughout the United States. In acreage New York and New Jersey head the list, but many states produce crops excelling the New Jersey crop in value. Strawberries come from all sections of the country, but the South Atlantic States are the heaviest producers, having in 1909 a crop worth $3,500,000, or about one-fifth of the total value of the strawberry crop of the entire country. The increase of value in small fruits is not given for the different crops separately, but as a whole the berries showed an increase in 19.8% in value, with a decrease of 7.9% in total production.

Our grape crop has had a picturesque history since the first vain attempts in colonial days. Ohio and Missouri have in turn led the other states in production, but today 63% of our crop comes from California, New York and Michigan. Practically all of our European grapes are produced in California, whereas New York and Michigan can produce only native American grapes of the Concord type. The grape crop for 1909 was valued at $22,027,961, an increase of 57.1% over the value in 1899. The total production in 1909 was 2,571,065,205 pounds.

The following table gives the value of tropical and sub-tropical fruits in the United States for 1909 :

Table VI.

Value Tropical and Sub-tropical Fruits in 1909

Fruit

Non-citrus fruits	Total value in 1909	Production in 1909	Increase of Production over 1899
Figs	$ 803,810	35,060,395 pounds	178.3%
Pineapples	734,090	778,651 crates	672.6%
Olives	404,574	16,405,493 pounds	220.6%
Bananas	5,661	10,060 bunches	Not given
Avocado Pears	10,100	4,920 crates	" "
Guavas	11,628	354,062 pounds	-78.8%
Mangoes	5,739	5,278 pounds	Not given
Persimmons (Jap.)	9,087	6,723 bushels	148.1%
Loquats	5,880	4,541 boxes	Not given
Pomegranates	4,203	152,825 pounds	" "
Dates	533	9,947 pounds	" "

TABLE VI (Cont.)

Citrus fruits

Oranges	17,566,464	19,487,481	boxes	217.0%
Lemons	2,993,738	2,770,313	"	215.9%
Grape Fruit	2,060,610	1,189,250	"	3,378.7%
Limes	12,478	11,318	"	-50%
Tangerines	68,770	38,752	"	Not given
Mandarines	6,553	3,896	"	" "
Kumquats	2,826	1,112	"	" "

The total value of tropical and sub-tropical fruits trebled in the ten years between the twelfth and thirteenth census figures. The production of citrus fruit alone increased 231.3%. Much of the greater part of the tropical and sub-tropical fruit produced in the United States is grown in California and Florida, the former producing 67.8% and Florida 28.7% of the total valuation. Of the oranges, nearly three-fourths are produced in California, most of the remainder coming from Florida. Nearly the entire domestic supply of lemons comes from California. Although California produces a few grape fruits, the dealers receive nearly the entire supply from Florida. No other class of fruit has increased in production and popularity in the past decade as has the grape fruit or pomelo. The other citrus fruits are unimportant ; these are limes, tangerines, and kumquats, chiefly from Florida and mandarines from Louisiana. The production of figs is widely distributed throughout the Southern States, although California leads with two-fifths of the crop. Arizona and California con-

trol the domestic supply of olives -- a crop which has trebled in the last decade. Florida is the only source of supply within the United States for pineapples, bananas Avocado pears, and mangoes .* The guavas are known only in California and Florida, and loquats only in the former. The native supply of pomegranates and dates come from several of the southern and southwestern states. Japanese persimmon is produced only in California, Florida and Texas.

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*Discussion Small Fruits, Grapes, and Tropical Fruits largely verbatim copy from "Better Fruit", Vol. IX, page 14.

CHAPTER FIVE

How Many Apples -- Overproduction.

The writer has been told on many occasions by various good business men, some of whom were farmers, to "keep out of the apple game -- there will be overproduction." In the general sense athat this germ is taken, it would seem from all points of view that this is indeed to be the case. However, without explanation, the admission of overproduction is sure to be misleading, and when it comes to the blanket advice to keep out of the apple game, it is indeed another question entirely. We will therefore at this point qualify and define this overproduction.

First, as to the subject of cycles of prices and plantings : "Man is so constituted that he is too likely to think that the present conditions are to continue. If we have a wet year or two, we think that it will always be wet, if good prices, these are to remain forever. In the case of prices, it is the very feeling of certainty that present conditions are to continue that makes it impossible for them to do so."* Farmers, to some degree, and near-farmers, to a much more marked de-

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* G. F. Warren, "Farm Management".

gree, are prone, in determining what crops and animals to produce, to select those which have been high for the last year or two. The fallacy of this appears with consideration of price range over a considerable period, showing temporary inclines and declines that have no real indicative value. Further, it must be considered as regard to the total amount produced that the weather for any particular year is almost as important as the acreage at that time. The annual crop tends to be much less out of adjustment to the demand than longer time crops for obvious reasons. To quote Professor Warren again : "The longer the time required to grow a product, the worse the periods of over and under-production become." Curves have been constructed to show the cyclic nature of prices with several products, and the result is very striking. The period for hogs is three years of high prices and three years at low,- a six-year cycle, and graphed prices since 1867 show true cycles which only vary occasionally with a very large corn crop, etc. The writer believes Professor Warren to be the most logical thinker of prominence in agriculture today, and as to the cyclic nature of farm production, there can hardly be any question, but the case for each individual or for each community is affected by many other factors.

From 1854 to 1864, apple prices were high, and from 1864 to 1874 they were very high, and continued at

about this level till 1878, when the down slope of the curve was reached. Prices dropped quite steadily, more rapidly at first, till 1896, the year of the famous bumper apple crop. Since 1896, the prices have been rising steadily till the present. 1912 was a bad year, and 1914 has been a very bad year, and it rather appears that the approach of the down turn is at hand. This should be well under way by about 1920, according to the cycle hypothesis.*

In Parma Township, Monroe County, New York, in 1912, 5.7% of the apple trees were planted between 1859 and 1878, and only 11% from 1879 to 1903, while 21% were planted in the five years 1904-1908** . In 1908, 6% of the apple crop of this country was borne on trees planted since 1878, and since practically no trees were planted after this period till 1903, we may expect high prices in some years until the recent plantings fully affect the production, and then large crops and low prices should prevail for a period of about twenty years. Professor Warren estimates that the plantings will affect prices about 1920 or 1925, but this estimate was made before the size of the last three crops, 1912, 1913, and 1914, and of these three, the first and last certainly point to an earlier Waterloo than Professor Warren anticipated.

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* See Appendix, Table 31.

The writer is convinced of the general soundness of the overproduction bugaboo in apples, but at the same time, he fails to see this as complete discouragement to the present, or even the prospective apple grower. We should remember that weather is almost as potent a factor in the production of a given year as is the bearing acreage ; farmers expect good and bad years with any crop, and most so with a biennial crop. A very progressive North Padific grower has told the writer that he could do very well on a 1913 year once in three or four years, and 1913 was only a fair to good year for western apples. A good many men will engage in the production of apples, and they will make some sort of profit, or they would cease to raise the fruit until the scarcity had brought up the price to a point where they could produce at a profit. The question for each grower and each community is : Who is going to raise the apples ? They must be raised. 100,000,000 to 300,000,000 bushels a year, and competition of a very harsh sort will decide.

We have, above, covered in a way the question of high or low prices to come, but it will be well to attempt

to settle this question from a slightly different angle. The following table may prove enlightening in the question of comparative high prices of apples. It will be noted that apples have increased in price in nothing like proportion to other staple food products.*

TABLE VII.

Comparative Increase in Price of Apples

and Other Crops.

Apples	9.5%	Oats	37.7%
Cotton	64.1%	Potatoes	28.2%
Corn	41.9%	Wheat	36.5%
Hay	33.4%		

Prices must be higher or lower ; they cannot remain at a medium level under the pressure of the capital involved. This capital is pretty well lost unless some return is obtained for apples, and it stands to reason that this capital will produce apples at a very low return rather than to mark itself out as a dead loss. We can start with the perfectly fair assumption of the existence at present and of the future "coming in" of further supply of more than enough trees to meet the demand for apples in any but small-crop years. As to the alternatives of high and low prices -- if prices should show any prospect of being good, the farmers will crop

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*See Appendix, Table 7.

(spray, etc.) more than enough apples to supply the demand at high prices, and the prices consequently will drop. Apples will be marketed as long as the farmer can get anything over his total cost of production, and in bad years fruit will be marketed below the cost of production,for once raised, the farmer must get what he can for his product. We have, then, a pressure of supply which will assure against higher than bare profit market prices in normal years. This pressure of supply will accomplish much in the lowering of the cost of production, considering production as taking the fruit clear to the consumer. Economic necessity, and this alone, may, and doubtless will, alter the machinery of distribution, and here are involved several important factors which vitally affect our future prices. The chief of these is increased consumption with lower prices. This subject is best discussed elsewhere. It is safe to say that producers in general will receive in normal years what they now consider bad apple year prices, and that the man who eats apples will pay less for them.

What, then, is to be the fate of the existing plantings of apples ? Unfortunately, just the sort of statistics on plantings which would be most useful in

this discussion are not available. Figures on bearing and non-bearing plantings over a long period of years, and figures on annual plantings would do much to clear up this matter. However, census figures and figures from other sources can be of the greatest assistance if studied intelligently, and we will below consider several tables on plantings and production.

The following figures on the production of apples since 1896 are the best that the writer knows of. The figures are rather conservative, generally below census or government figures, and represent something like the commercial crop. Estimates for 1896-97-and 98 are from "Better Fruit", Vol. V, No. 5, and estimates for 1911, 1912, 1913, 1914, are from various sources, including the Pomology Department at Cornell University, and certain government figures. All of the years are from estimates of the American Agriculturists:

TABLE VIII.

U. S. Production of Apples in Barrels.

1896	69,070,000	1906	38,280,000
1897	41,530,000	1907	29,540,000
1898	28,570,000	1908	28,850,000
1899	37,460,000	1909	25,415,000
1900	56,820,000	1910	23,825,000
1901	26,970,000	1911	31,499,000
1902	46,625,000	1912	47,825,000
1903	42,626,000	1913	30,900,000
1904	45,360,000	1914	40,505,000
1905	24,310,000		

The average for the five years, 1896-1900, from the above table, is 46,690,000 barrels, the average for the five year, 1901-1905, is 37,178,200 barrels; and for 1906-1910, 28,582,000. It appears, then, that there has been a regular decline in production, the second period averaging 9,511,800 less than the preceding five years, and the years of the third period averaging 8,596,200 less than those of the second. Note, however, that since 1910, every crop has been above the average of the previous five years (1905-1910). The lowering of production may be explained by the fact that until about 1911 practically all bearing trees (94% estimated) were planted previous to 1878, when a low price period set in and planting ceased. These bearing trees are rapidly going out with age and accident (wind storms, etc.) and a decrease in production, 1896-1910, is to be expected. We have further seen earlier in this chapter that the last period of planting began about 1903, and it is also to be expected that production will increase when these trees begin to come in, about 1910, 1913.

Mr. L. J. Steele, in undergraduate work at Cornell University, in the last year, has conducted a questionaire with nurserymen all over the country. From a great many replies, he selected 38, from twenty-four states, and from these he finds that 17.6% more apple

trees were bought for setting 1909-1913 than were bought during the four years previous, 1904-1908, and that the trees purchased in 1913 showed a decrease of 5.3% from those purchased in 1912. The high planting had been increasing steadily for about ten years up to 1913, when the very bad year of 1912 caused the above 5.3% decrease. 1913 was a good apple year, comparatively, and though figures are not available, probably 1914 plantings increased somewhat over 1913. There is a tendency to let the pendulum swing too far -- we go on after evidence definitely shows that apple plantings are hardly the most promising agricultural investment.

The following United States Census figures are very valuable. There were 120,152,795 bearing and non-bearing trees in 1890, 201,794,764 in 1900, and 217,121,689 in 1910. The maximum was not reached till 1895-1896, and the commercial crop decline since has been given, the higher number of trees in 1910 over 1900 simply shows the existence of a larger proportion of non-bearing trees (about 45%). The 1910 crop was but about half of the 1900 crop. The number of farms, the bearing and the non-bearing trees in the United States and in several of the larger producing and more indicative (recent heavy plantings) states are as follows :

TABLE IX

Farms, Bearing and Non-bearing Apple Trees, 1910 Census.

States	Farms	Trees
United States	2,980,398	151,322,840 bearing
" "	1,498,746	65,798,848 non-"
New York "	168,677	11,248,203 bearing
" "	48,007	2,828,515 non-"
Missouri	183,396	14,359,673 bearing
"	75,035	3,624,833 non-"
Washington	21,156	3m009,337 bearing
"	21,401	4,862,702 non-"
Oregon	23,850	2,029,913 bearing
"	14,327	2,240,636 non-"
California	19,671	2,482,762 bearing
"	12,716	11,054,107 non-"
Colorado	7,968	1,688,425 bearing
"	6,496	1,972,914 non-"

Before commenting on these figures, it will be well to submit figures from the same source for 1909 production and value of crops in several crops. Interesting comparisons can be made here. The yield figures are the "agricultural" and not the commercial yield ; the latter is usually 40 to 50% of the former.

TABLE X

Bushels and Total Value of Apples in Various States, 1909.

States	Bushels	Value
New York (1st)	25,409,000	$13,343,000.
Michigan (2nd)	12,332,000	5,969,000.
Pennsylvania (3rd)	11,648,000	5,557,000.
Missouri (4th)	9,968,000	4,885,000.
Washington	2,672,000	2,926,000.
Oregon	1,931,000	1,657,000.
California	4,935,000	2,902,000.
Colorado	3,559,000	3,405,000.
United States	146,122,000	83,231,000.

Missouri, in 1910, had more bearing trees than any other state, but Missouri apples were worth but about 50 cents, while Washington apples are worth better than a dollar a bushel. In the West, where high value per bushel is shown, there have been the heaviest plantings of late, and there are the largest proportion of non-bearing trees ; Washington has half again as many non-bearing as bearing trees. In New York, there are about 127 trees to the farm, while in Washington there are over 200 trees to the farm. This last is important for the question of small versus commercial producers will be a vital one in the future competition. Nearly half the farms of the United States (46.9%) reported bearing apple trees in 1910, but a very large proportion of these are only kitchen orchards, or are used as such except in years of specially good apple prices. Though there was a decline in total production of 16.7% from 1899 to 1909 ("agricultural") crop -- Census figures -- production increased in 30 states and decreased in but 18. The largest increases in production were in Missouri, Michigan, Colorado, and California, and the largest decreases were in Ohio and Pennsylvania.

Definite apple statistics on Northwest plantings are conspicuously lacking, but in this connection the fol-

lowing opinion of Mr. Shephard, the editor of "Better Fruit" should be of much value :* "The crop of 1912 was about 12,000 cars ; in 1913, 8,000 cars ; and in 1914 will be about 12,000 cars. It is impossible to get an average price for the reason that no such figures have been compiled. Different marketing concerns in different places, different varieties and different grades and sizes present such a variation that no one has ever attempted to figure out an average price, and without such a record being kept, the average price could not be compiled. In 1912 the average price was somewhat under $1.; in 1913 it was considerably over $1. for all varieties, grades and sizes. It is a little early (December 5, 1914) to make a guess on this year's prices, but I assume the grower of good varieties in good districts will probably receive somewhere around $1., although it may be somewhat less. The acreage in the Northwest has been estimated at about 500,000 acres in apples. About 20% of this is estimated to be in full bearing last year. Probably 10% to 20% of the balance would come into bearing annually. A prominent official in the Department of Horticulture at Washington, D. C., informed me when I was there in 1910 that only between 10 and 20% of the fruit trees planted in the United States ever made commercial orchards. Old nurserymen tell me the same. Therefore the average

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*Letter to the writer, Dec. 5, 1914.

would be about 15%. Assuming the Northwest would do quite as well as the average, that would be about 30%, which would mean that perhaps 150,000 acres out of 500,000 acres in the Northwest would make commercial orchards. If 20% of the bearing acreage is in bearing, that would be about 100,000 acres, which probably is an exaggeration, and if 12,000 cars were shipped, it would mean that if the whole acreage came into bearing as it did in 1914, the output of the Northwest would be about 50,000 cars. A few years ago various newspaper men and railroad men began to figure on the production of the Northwest, taking the number of acres at so many trees to the acre, producing so much to the acre, and estimated. If I remember correctly, the crop in 1915 would be 50,000 cars and in 1920 150,000 cars. I honestly believe that it will be a long time before the Northwest will exceed 50,000 cars. If we are to have 50,000 cars in 1915. and only 12,000 cars in 1914, we have to go a good deal faster in increasing the production in the future than we have in the past."

Apples produced in other countries affect only our foreign market, and important as this market is, specially to high grade fruit, only 7 to 10% of our commercial crop is exported. We will consider foreign production later under the head of foreign markets.

We have now gone over the plantings of apple trees, they are very large and have been increasing, and further* "there is no shortage of apple land, most of the tillable land in the United States is well adapted to the crop". What will then be the fate of existing plantings. The question resolves itself into one of competition ; apples must be produced, and the individuals and communities that can produce the required grades of fruit at the least cost will outcompete others. Montana and Colorado districts cannot avail themselves of the Panama Canal all-water shipments to the East and to South American and European markets, as can, for instance, Hood River, Oregon. This is, of course, not the only factor in the competition, and it may or may not be the deciding one, but this factor gives Hood River an advantage, and it is just such factoss as this which will determine the survival of the most fit. To quote Mr. Shepard again.** "An elimination process is going on. There are some sections in the Northwest where apples cannot be grown of sufficient quantity and flavor, color, keep, and perfection to justify Eastern shipment. Such sections, as you can readily understand, must necessarily

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* G. F. Warren, "Farm Management".

** Letter to an Oregon orchardist.

pass out. Blight is another factor as wiping out an immense area already set to apple trees. Large tracts set by promotion companies to be sold on 10-acre plan in some instances have already passed out. Others are passing. I know of one case, a 3,000 acre tract that has not been cultivated this year. The reason is people were buying tracts on the payment plan during the boom, and when the boom ceased, and business became depressed, they discontinued their payments. The promotion company had depended on a continuance of these payments and the continued selling of 10-acre tracts to carry on their cultivating. This having ceased, the work on the tracts ceased, and it doesn't take long for an orchard tract to be down and out without proper care. I have heard several able men lately say there are only from three to five sections where the apple business will be continued in the Northwest. The first three of these would be Hood River, Wenatchee and Yakima, and to these is sometimes added parts of Southern Idaho and Southern Oregon. The general impression is that Southern Oregon has not been very successful in making money in the apple business, but it is a splendid pear country, and I think the day is in the near future when nearly all of Southern Oregon will be pears, far in excess of the apple production."

The general opinion of men with whom the writer has talked is that the best apple districts will produce the future apples, and that the small grower in the less favored districts will have to be content to supply his own table. New England corn cannot compete with Iowa corn, because it cannot be raised as well in New England -- the soil and the climate are an insurmountable handicap to New England. The writer is convinced that the same thing will evolve out of the heavy future crops, and he sees no reason why the best farmers of the New York growers, of the Virginia growers, and even of the North Pacific grwwers, may not continue to operate their orchards at a normal profit over a period of years, while the cycle juggernaught is forcing out all the absurd recent, steep-hillside, poor soil, and out-of-the-way plantings ; forcing out, let us say, thousands of acres in poorly favored Missouri.

CHAPTER SIX

The Ultimate Limits of Production.

The ultimate limits of the production of apples may be reduced to two things : the cost and returns of the apple orchard and the consumption of apples. Either heading, in one sense, includes the other, and various headings might be worked out to include or to subdivide one or both of the above, but for discussion of the underlying principles, these two are as apt as any.

In the previous chapter we have several times hinted at the direct dependence of production upon the profit or loss made by the grower. The principle is simply that apples or any other crop will be produced as long as a profit can be made, and will creas to be produced above the amount that will bring a profit. With a long-time crop, the extremes are true ; a very low profit will be accepted on apples before the expensive orchard will be taken out or allowed to "go back", where with potatoes the farmer can next year leave this crop out of his rotation. This is the sum of the only logical conclusion that can be made from any observations of supply and demand in farm products, and the principle can only

be amplified. Data on the cost of producing apples that is accurate enough to be used for calculations is not available. The absence of such data is only explainable by the fact that the very important science of cost accounts in agriculture is a new one. Though cost accounts on annual crops have been carefully worked out in detail in New York, Minnesota, and elsewhere, dependable figures for the production cost of apples, including the six to ten unproductive first years, will not have been worked out for several years. Estimates are valuable in the absence of such exact data, and the most reliable of which the writer is aware are given here.

For 6.1 acres, containing 234 apple trees of mixed varieties and ages, over a ten-year period, M. C. Burritt, of Cornell University found the average yearly cost per barrel of apples to be $1.08. As regards Western box fruit, Mr. Shepard estimates the total harvesting cost of a box as reducable to 30 cents (under unfavorable circumstances his own cost was 35.9 cents). From estimates, Mr. Shepard believes that 25 cents will cover all cost of growing, from the end of one harvest to the beginning of the next. This makes 55 cents to which 35 to 55 cents must be added as the water or rail rate to New York. The overhead (interest, etc.) charges

that must be added to this varies with the land value, and is best not included here in considering one of the Western orchard communities, where land values are so unsettled, descending, as they have, from ridiculous boom prices to an indefinite, much lower status, with not enough land transfers to fix the cost. Fifty-five cents, then, plus thirty-five to fifty-five cents, gives 90 cents to $1.10, plus overhead charges, which must be received as wholesale price in New York before the Western grower can make a profit. With 1912 and 1914 prices, very little over $1.00, and 1913 prices not a great deal over $1.00, (See Mr. Shepard's letter quoted on page 57) , we can see that we do not appear to be far from the point at which Western growers can no longer raise apples.

Farmers' Bulletin, 615, U. S. D. A., gives the following figures on the average price received per bushel by growers the country over. This is interesting, but without other data on the same apples, it is of little value for comparison.

TABLE XI.

Prices Received by Growers Per Barrel of Apples.

Date	1910	1911	1912	1913	1914
June 15	No data	No data	$1.08	$1.01	$1.36
July 15	$ .77	$ .95	.82	.86	.91
Aug. 15	No data	No data	No data	.68	.75

Prices are to tend to be at least as low as they are at present -- lower prices will tend toward greater consumption and the pressure of the competition forced by lower prices will cause the lowering of the cost of production ; this is the most important phase of the question. The writer has spent the past two summers in Hood River, Oregon, and in that short time has seen the change from the expensive policy of "clean cultivation is the only thing" to a general trend for intercropping and farm diversifaction. The by-product side of this discussion is a very promising one (Mr. Shepard estimates a saving of from $10. to $20. an acre from this source), and the phase of savings in distribution discussed in Chapter Two will undoubtedly have much effect in this direction.

The costs, then, may be lowered, and the returns will be a slight profit of necessity, but the marginal profit will tend to be low. Our conclusion is identical with our first premise : apples will be produced at any profit and below profit they will not be produced.

The various phases of consumption of apples have been or will be treated elsewhere in this work, and

here it is only necessary to sum up the question. To begin with, apples have always been the most popular and the leading fruit in this country, and this is a great advantage to the apple industry. The consumption depends to a large degree upon price, and the prices are to be low, so we can count upon increased consumption from this lowering of prices. There is the most intense sort of competition going on between the various fruits; this will strongly tend against increased consumption of apples. The apple has some advantages over other fruits; oranges cannot be cooked unless jellied, but the rate at which the grape fruit has been taken up in the last few years is assurance of the mobility of public taste in fresh fruit. The story of the banana, the poor man's fruit, is discussed on pages 35 and 36 in this treatise. Extending consumption by advertising and standardizing promises much within certain limits ; these topics are discussed later. Various grades of apples are consumed, and the demand for the most expensive fruit is very limited. Such consumption buys to please its eyes, but the great consumption which affects the whole of the industry is the consumption of the lower grades of fruit. But one other factor need be mentioned. This is the population increase. Increased population means increased markets, but the markets will become none the less compe-

CHAPTER SEVEN

What We Have Today

In this chapter we will take up five of the most important phases of the present apple industry. We will take these up in the following order :-- Apples - Staple or Luxury, Distributing Organizations, and Individual or Co-operative Selling, Increasing the Demand - Standardizing and Advertising, Competition of Other Fruits, and finally the various markets.

Apples are not at all a necessary of food. Fruits are not a necessary of food, since proteins, carbohydrates and fats can be obtained in more concentrated and cheaper forms in other foods. Much less, then, is any one fruit a necessary of food, since any other of many fruits can substitute for it. The query as to whether apples or a staple or a luxury is of no importance. It is not worth settling, since it is but a matter of definition. The farther from a luxury that apples will appear, due to the extent of the habit of their use and to the price at which they are sold, the greater will be the consumption. Apples will appear a staple if the price is low enough. Bananas are a staple to a great number among our foreign population who have become accustomed to this fruit (See pages 35 and

36). Apples are selling wholesale and retail right beside oranges, grape fruit, bananas, and whatnot, and the price cannot but be an all important factor to the buyers of these fruits. Elastic demand increases in about direct proportion ; other things being equal, halving the price doubles the demand. Apples are, then, a staple or a luxury primarily as they vary in price, and excluding the very highest grades of apples, the industry will benefit or suffer (other things being equal, again) in proportion as apples are made by their price to appear a staple of the daily public diet.

We have discussed distributing organizations of farm products in Chapter Two. At this point we will consider something of the same question as it applies to apples. Commission and jobbing, etc., is practiced in the apple trade as outlined in the above mentioned chapter, but co-operative organizations, in as far as they concern apples, merit further discussion at this point. For nearly all examples of successful co-operative concerns, we must look to the Far West or to specialized districts in the East. Some little work has been done on co-operative marketing of apples in New York communities, but the movements are not at all well developed. It is in the

West only that co-operative apple marketing has been carried on thoroughly enough to give this practice anything like a trial. Mr. G. K. Holmes'(See page 21 of this treatise) statement of the essence of the matter admits of the results and possibilities of co-operative marketing under "good management" and "with conditions which permit success". This system is still on trial, and yet it has gained already such momentum that there must be something back of it. Northwest growers have had local associations and unions for several years, and the 1913-14 crops were marketed to a large degree under the co-operative body known as the North Pacific Fruit Distributers. The Northwest growers are planning at present a large representative meeting at Spokane in February, 1915, at which it is expected that further marketing schemes along lines similar to those now in vogue will be evolved. Many evils of strict competition were not avoided by the distributers; in spite of every effort self-competition went on, and over-heavy consignments and under-bidding, etc., all lent a hand in bringing low returns for the 1914 crop. The writer has been told by various men whose judgment should be of the best that the only salvation for co-operative fruit producers was complete pool of produce, with no chance for the insistance on the pick of the markets at certain times by any fruit-raising community. This com-

plete pool is without doubt a vital point, but the California Fruit Growers' Exchange has managed without such an absolute pool, the various localities retaining their respective identities, and though the circumstances in California are different, the writer believes that this one factor will not check the movement in the Northwest.

Each grower must decide in these communities whether he is to market individually or with the union or association. If the association is clearly bringing him the highest prices, there is no doubt as to what to do. But when, as in many cases, the association does not bring in as good prices as certain individuals receive by standing out for themselves, it is a different question. The writer knows of a group of growers who are associated in a Northwest valley to market their apple crop independently of the local and of the Northwest Association. These growers believe that they can grade higher, etc., and so get an earned better price. Is it right to say to these men : "We know you can get better prices selling alone, but we want you to sell through us so that the co-operative idea will gain strength?" The writer believes not. The burden of proof is on the co-operative association ; they must prove themselves to be most advantageous marketing agency before they can be allowed to market all the fruit. The small grower has been forced to join the association.

He cannot handle his own marketing, and though the larger owner may believe in co-operation and eventually intend to join the movement, he cannot be logically asked to sell his apples for less than the highest price that they will bring under any pretense of any motive whatsoever.

Within limits, a great deal may be done in the direction of getting a larger consumption of apples. We will consider this phase of increasing the demand under the heads of standardizing and advertising.

The grading of apples has come from the West to the East. In the West what was then a revolutionary uniformity of pack became a necessity. The Western grower could only sell fruit at top prices to compete with Easterners who did not have the expensive long shipment, and hence there developed in the Rocky Mountain and North Pacific States systems of sizing, grading and packing which have very vitally affected the apple industry. Perhaps the most important function of grading is that in thus standardizing the marketable produce, there is taken a long step in bringing the consumer closer to the producer. This standardizing has also allowed much of the change from commission to jobbing marketing, and thus accomplished a

great deal towards the simplification of distribution. Standardizing has its drawbacks ; the Chicago commission men on pages 11 to 14 of this treatise mention some of these, but nevertheless standardization is a most decided advance in agricultural marketing. We cannot accomplish anything by clinging to antiquated methods. We must make what progress we can by adapting ourselves skillfully to the inevitable new systems.

When the Sulzer bill was before the House of Representatives, the International Apple Shippers' Association prepared a pamphlet in support of the bill, in which they submitted, among many other figures, the following tables :--

TABLE XII.
Barrelled Apple Exports : United States and Canada.

Five Year Period From	United States	Canada
1882-1887	2,354,256	585,277
1887-1892	3,115,107	1,480,106
1892-1897	3,904,224	2,578,255
1897-1902	2,859,628	2,450,101
1902-1907	8,154,552	4,353,103
1907-1912	4,310,474	5,048,305

TABLE XIII
Percentage Increase and Decrease, United States and Canadian Exports

1882-1887	U. S. Increase over Canada	300%
1887-1892	U. S. Increase over Canada	110%
1892-1897	U. S. Increase over Canada	51%
1897-1902	U. S. Increase over Canada	16%
1902-1907	U. S. Increase over Canada	87%
1907-1912	U. S. Decrease from Canada	14%

This pamphlet of the Shippers' Association laid the Canadian gains largely to the Canadian Fruit Marks Act, which had at this time been in effect some years.

A grading law has been in effect during the present season (1914) in New York State, and although it is too early to pass final judgment upon this, it is certain that the first year's practice of the law has not been either an unqualified success or an unqualified failure. The season was not one for fair trial, but decidedly one for a severe trial. There were many complaints, but these came mainly from the smaller growers, who claimed to be unable to pack inside the law without unjustifiable expense, and these growers asked for lower grades and for wider limits in the higher grades. It appears that the law is not strictly enforceable, and not being in the "agricultural code". Further, the law was hardly followed out to the letter during this year.* The present plans are to go on under this law, and it would appear that grading will continue in New York State, but there are many difficulties to be overcome. There has been considerable agitation in New England in regard to apple

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*The writer inspected several sample barrels of Standard A Baldwins during December, 1914, on the New York Central Pier, New York City, which needed much leaway before strictly falling under the specifications.

grading.* New England will have every disadvantage and will lack many of the advantages of New York in putting through a grading measure. Fruit is even more scattered in New England than in New York State, and there is much less of it.

The International Apple Shippers' Association (Rochester) and in the last year or so the Apple Advertisers of America (Baltimore) have done a very considerable work in advertising apples, and they are vigorously pursuing plans for the future. The shippers distributed a great number of booklets on apple recipes several years ago, and they have just lately put on its feet the slogan, "Eat an apple a day -- keep the doctor away". Mr. Phillips, Secretary of the Shippers' Association, has shown the writer a large book of newspaper clippings on "Apple Day", 1914. The Shippers' gave a cup to the city holding the best demonstrations, etc. (won this year by very enthusiastic Cincinnati), and the results of this Apple Day were felt all over the country. The apple Advertisers work in harmony with the shippers, and though much newer, the former organization have done a great deal. Other agencies have done much ; growers and dealers. Steinhart and Kelly, fruit dealers of New York City, have

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*Boston Herald, January 11, 1915.

had during this (1914-15) season very catchy advertisements in the New York City subway and elevated cars, with the "Eat an Apple" slogan over the name and attractive picture of the "Skookum" apple, the particular Northwest brand that they are pushing this year. This advertising has value, and all apple men should support it. There is some danger of waste in the cross advertising of competing brands of boxed apples, etc., but in general the more said about apples, the less the public will think about oranges. Any means of causing more intelligent use of apples is also productive advertising. The following table is an example of this ; intelligent seasonal consumption of apples means satisfaction and future purpose.

TABLE XIV.

Seasonal Fitness of Apple Varieties.

W. S. Thornber, Lewiston, Idaho, "Better Fruit", April, 1914.

Variety	Months to be Used (Season)	Condition	Dessert	Sauce	Baking
Yellow Transp.	Aug.-Sept.	Unripe	Good	Excellent	Poor
" "	" "	Ripe	Excellent	Good	Poor
Duchess	Aug.-Oct.	Unripe	Poor	Excellent	Poor
"	" "	Ripe	Excellent	Good	Good
McIntosh Red	Sept.-Oct.	Unripe	Good	Excellent	Good
" "	" "	Ripe	Excellent	Good	Poor
Wealthy	Sept.-Oct.	Unripe	Poor	Excellent	Excel.
"	" "	Ripe	Excellent	Excellent	Good
Winter Banana	Oct.-Dec.	Unripe	Good	Poor	Poor
" "	" "	Ripe	Excellent	Poor	Poor

TABLE XIV (Cont.)

Variety	Months to Be Used (Season)	Condition	Dessert	Sauce	Baking
Delicious	Oct.-Nov.	Unripe	Good	Good	Poor
"	" "	Ripe	Excellent	Poor	Poor
Jonathan	Nov.-Dec.	Unripe	Good	Excellent	Good
"	" "	Ripe	Excellent	Good	Poor
Grimes' Golden	Nov.-Feb.	Unripe	Poor	Excellent	Good
"	" "	Ripe	Excellent	Good	Poor
Stamen	Dec.-Feb.	Unripe	Poor	Excellent	Good
"	" "	Ripe	Excellent	Good	Poor
Spitzenberg	Dec.-Jan.	Unripe	Good	Excellent	Excellent
"	" "	Ripe	Excellent	Excellent	Good
White Pearmain	Dec.-Mar.	Unripe	Poor	Good	Good
"	" "	Ripe	Excellent	Poor	Excellent
Rome Beauty	Dec.-Apr.	Unripe	Poor	Excellent	Excellent
"	" "	Ripe	Excellent	Good	Good
Yellow Newtown	Feb.-May	Unripe	Good	Excellent	Excellent
"	" "	Ripe	Excellent	Excellent	Good
Winesap	Feb.-Apr.	Unripe	Good	Excellent	Good
"	" "	Ripe	Excellent	Excellent	Good
Wagoner	Feb.-May	Unripe	Poor	Excellent	Excellent
"	" "	Ripe	Good	Good	Poor
Ark. Black	Feb.-May	Unripe	Poor	Excellent	Exceleent
"	" "	Ripe	Poor	Poor	Good
Ben Davis	Feb.-May	Unripe	Poor	Good	Good
"	" "	Ripe	Poor	Poor	Poor

Advertising can hardly create a want, but it can disclose a desire, and thereby create a demand. "Sunkist" for oranges is a model for the results attainable for efforts toward a brand, and this has meant thousands of dollars in receipts, and many more thousands in prestige to the California Fruit Growers' Exchange.

There can be no question but that apples compete decidedly with every other fruit on the market, literally

from mangoes to hickory nuts. In a previous chapter, we have traced the history of the apple industry from the days when it did not even compete with the Mediterranean trade through the period when the apple was practically the only widely consumed orchard fruit. The first California shipment was made in 1867, but only in the last twenty years have oranges been keenly marketed up to the limit of consumption. The banana trade (see pages 35, 36 of this treatise) is even more recent, and the grape fruit most recent of all. Florida grape fruit alone increased from 117,336 boxes in 1900 to 1,611,537 boxes in 1910, about a 900% (see Table VI, page 44). Our population is increasing rapidly, and more and more fruit per capita seems to be eaten. This gives room for increase in all agricultural production, but the fruit production has been generally over-emphasized and a man will either eat an orange, a grape fruit or an apple for breakfast, he won't eat them all, or if he were able to perform this feat, the growers of each respective fruit would all clamor to have him eat three of their particular kind.

The apple has certain advantages, some of these have already been mentioned. The apple has always been and is the leading fruit of this country, and this is worth something ; but the rapid public appreciation of

the citrus fruits in the past generation has shown this advantage is not necessarily permanent. The apple can be consumed in more conditions than can any other fruit. The apple has more to fall back on in the way of by-products than any other of our orchard fruits, in spite of the "essential oils" of the citrus industry. Probably more than any other advantage found in the apple will be the possibility of lower cost of production of this fruit compared to others, and its greater ability, compared to some, to find outlet in the lower levels of ultimate consumers.

Under Chapter Three we have discussed the markets of this country, applying the question to farm products generally, and as regards the domestic markets, apples fit in with this discussion with only slight qualifications. Apples are so universally produced for home use by farmers that the farms and small villages, and even many outlying towns, are practically marked off the map of demand for the fruit that is not produced in that immediate locality. This differs apple from orange distribution, for instance. Further, Eastern apple states can hardly expect to market apples in other Eastern apple states, except in the larger cities, and even there they

are at a strong disadvantage. The whole market question is thus to some degree localized on a large scale. Western apples are an exception to this, and have proven their ability to sell on their appearance beside less expensive and often quite as good quality locally produced fruit.* "Local" and "unclassified" markets are then pretty well out of the question, except for locally produced fruit, and for anything like distance shipment, the grower must turn to the primary market. The largest primary markets for apples in about the order of their importance may be listed as : New York, Boston, Philadelphia, Chicago, Cincinnati, Baltimore, St. Louis, Pittsburgh, SanFrancisco, New Orleans, and Seattle. We will leave the question of domestic markets here and proceed to take up in some detail the foreign markets. The writer realizes that more than proportionate emphasis is laid below on foreign markets. However, the subject is most interesting to all fruit growers and dealers, and is especially vital to the growers of the Far West, and since their grades of fruit are more in demand abroad than the general grades of Eastern fruit, the Western growers will do well to follow up this matter very vigorously.

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* The writer has observed Pacific Coast apples attracting attention on fruit stands in Rochester, N. Y., the center of perhaps the greatest apple region in the world.

About 7% of the United States apple crop is marketed over seas, each year, and this fruit tends strongly to be the better and the best classes of fruit and to be more uniformly and safely packed. This preference has favored the strictly graded Northwest boxed apple, but the handicap of transcontinental freight rate to the Atlantic seaboard for European shipment has largely offset this. Foreign markets seem to prefer the boxed fruit, but barrelled apples are generally delivered per bushel cheaper (barrel equals three bushels). In England, always the chief foreign market for apples, there has been built up by many years of custom the liking for barrelled apples of certain varieties, notably the Baldwin ; this is a distinct advantage to Eastern barrelled fruit. There are many difficulties attendant on foreign shipments of apples, as there are in any foreign trade, and development of foreign markets must proceed very slowly, since transportation, refrigeration, storage, and most important, trade relation facilities can only be built up with time. Our Yankee methods run into many stumbling blocks as soon as we get away from our own shores, and only conservatism can be successfully practiced when dealers over the seas are to handle our output.

The markets outside of the United States are

briefly considered country by country below.*

England should be mentioned first. This was our earliest and has always been our largest market. Liverpool, London and Glasgow have always taken most of our exports of apples. England imports large quantities of apples from the United States and Canada as well as from other countries. Their relative importance is shown by the following approximate percentages :

TABLE XV.

English Imports of Apples.

Country	1911	1912
United States	44%	43%
Australia	9%	10.5%
Belgium	0.8%	1.3%
Canada	41%	42.7%
France	1.6%	0.4%
Portugal	2.6%	2%
All others	1%	0.6%
	100%	100%
Total imports in cwt.	3,332,618	3,881,946

Distribution by the importing fruit brokers is either by private sale or by auction. When large quantities are to be dealt with, the latter method is most general, but where the supply is short, private sales are frequently better. Brokers prefer to be in a pos-

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* Much of the text, and all of the tables not otherwise specified on the subject of foreign markets here are from R. M. Rutledge, "Better Fruit", Vol. IX, No. 1, and from S. S. Lamb's article based on consular reports published in "Better Fruit", May, 1914.

ition to adopt either method according to their judgment of market conditions at the time. The 1912-13 American imports came in at the following ports as follows : Liverpool, 35% of total U. S. export barrelled apples, and 22% boxed apples ; London, 19% barrelled, and 38% boxed ; Glasgow, 18% barrelled and 7% boxed. Of the boxed apples, taken into Great Britain, Washington supplies about 60% and Oregon and California each about 20%. Appendix tables give exact import figures, etc. England is a large, but a very close market for all fruits. There are some strong variety preferences ; the Elberta peach, for instance, is practically the only peach marketed in London. The writer has been told by M. W. French, apple exporter of New York City, that at a fair price the English market for Baldwins was unlimited, but that the market for any other variety went "all to pieces" as soon as any above normal shipments were made. The heavy expense of placing apples on the English market is rather discouraging ; the Panama Canal should materially aid the Western grower. In 1912-13, best quality Yellow Newtowns brought $1.22 to $1.94 per half box ; the red apples $1.09 to $1.94 ; "choice" boxed apples per box brought from $2.18 to $4.86. Australian Spitzenbergs, in the opposite season, brought about $1.65 per 40 pound

box. Newtowns "104 s" to"144 s" are the preference Western apple. Gravensteins and Jonathans have been mentioned as well liked early apples ; Spitzenberg, Staymen, Winesap and Romes, as late varieties, and Ben Davis and Blacks as very late varieties from the West, which are specially desired. Some apples are raised in England, but the climate is unfavorable ; they are generally of a very poor quality, and as competitors, they are negligible.

Germany imports large amounts of apples, chiefly from the United States and Australia. In 1912-13, 300,000 boxes and 230,000 barrels were handled at Hamburg, the barrels coming from the Eastern States and Canada, and the boxes chiefly from Washington and Oregon. Hamburg is the distributing center for all Germany. In 1912 what were called low prices prevailed, with three times the usual shipments of apples, the prices per wholesale box ranged from $1.66 to $2.14.

Apples are the only United States fruit sold in France, and practically all of these come from the Northwest. After a bad local season, there is a good market for apples. They sell, retail, on Paris fruit stands for from five to eight cents a piece. The French market depends entirely upon the local production of fruit

and for this reason is so unsteady from year to year that shipping apples to France steadily is something of a speculation.

Belgium imports considerable apples through Antwerp by way of London and Southhampton. The market is controlled by London, and only the best quality apples sell, local production taking care of the poorer grades. The United States ship a good proportion of the apples consumed. Canadaand South Africa also supply some. This market is characterized by irregular shipments and fluctuates badly.

Denmark, Norway and Russia consume considerable of our fruit ; 1,000,000 pounds of apples and pears were imported from this country to Norway in 1910. American apples brought in this year $4.86 to $6.07 per wholesale barrel, in Stavanger, but shipment to the markets of all three of these countries is very expensive, since it includes repacking, or at least reloading at English ports. There are some homegrown red apples in Denmark, but American apples are imported through Hamburg, and the English cities.

There is practically no market for apples in Russia, and there seems to be no chance for increase ; very little fruit is eaten, and the country is locally self-supplying. Conditions in The Netherlands are similar to those in Belgium, and though there are excessively

high import freight rates at Rotterdam, some few American apples find their way to this country. This completes the survey of the countries shipped to via the English Channel.

Austria-Hungary will pay a very high prices for a limited amount of the best fruit ; well-to-do classes would probably buy considerable American fruit out of the fresh fruit season in that country. Hothouse out-of-season Australian fruit shipped in 55 pound wooden packages has brought excessively high prices.

There is, generally speaking, no market for American fresh fruit in any of the Mediterranean countries. These countries produce such an enormous amount of fresh fruit at prices with which it is impossible to compete that there appears to be no opportunity for American fruit interests here.

In the Northwest, Asia is generally thought of as a big market for apples, but as a matter of fact, only small quantities of first-class stock is demanded. Only the most wealthy classes of natives in these densely populated countries can purchase American apples, and these few, with the small foreign colonies in the larger cities, make up the market. Hongkong imported 11,000 boxes of apples from all countries in 1912-13, and of these 2,000 boxes came from Hood River by way of Seattle and 6,000

were second and third class apples from SanFrancisco. Certain Western growers can supply this market to advantage, but it is a question of individual business relations and not at all a normal market.

Australia imports dried fruit and exports fresh fruit. They are strong competitors of our apples, though they are always marketed in the opposite season. The following figures and tables are from the "Official Year Book of the Commonwealth of Australia"(Boston Public Library). 47,749 acres of fruit were planted in Australia in the last ten years. The main increase in Tasmania (16,383) and Western Australia (12,118) is due to the extensive plantings of apple trees with a view to the London market for fresh fruit.

TABLE XVI.

Total Acres of Orchards and Fruit Gardens and Acres per Population for Australia.

Years	Acres	Acers per M of Population
1901-02	146,775	38
1907-08	169,299	41
1908-09	171,558	41
1909-10	178,798	41
1910-11	185,156	42
1911-12	194,524	43

Note : Australian fruit ranges from tropic pineapple and mango to temperate apple, strawberry and gooseberry.

Australian fresh fruit imports consists chiefly of bananas from Fiji ; oranges and lemons from Italy ; add out-of-season apples from Canada. 1911 fresh fruit exports amounted to £420,780 (£594 of this was re-exported). This fruit was apples to a large extent, add they were sent to the United Kingdom, Germany, New Zealand, Brazil, U. S. A., and India. The following table gives an idea of the fruit trade of the Commonwealth :

TABLE XVII.

Net Imports of Dried Fruit and Net Exports of Fresh Fruit for Australia.

Date	Net Imports Dried Fruit Quantity Lbs.	 Value	Net Exports Fresh Fruit Quantity "Centals"	 Value
1901	13,433,735	165,099	----------	41,031
1907	8,000,000	57,864	246,482	17,594
1908	8,000,000	64,159	211,585	19,257
1909	12,000,000	108,046	121,997	18,168
1910	9,000,000	74,311	326,928	19,513
1911	5,000,000	45,042	313,088	12,592

Of preserved fruit in 1911 Australia imported £67,620 worth and exported £29,245.

The following figures and quotations from the 1913 New Zealand Official Year Book are of interest, more as production figures of a competing country than as applying to a prospective foreign market. "Each succeeding

year shows a marked increase in area planted to commercial orchards in the Dominion." For the four years ending December, 1912, 7,413 acres were planted, and 2,420 acres were estimated for 1913 ; the total 1913 area would then be 38,720, as compared to 31,953 for 1910-11. "A good market exists locally for choice, clean fruit, but as large areas recently planted come into bearing, growers will have to look to outside markets to take the surplus, and it is hoped that the export of fruit will become in time one of the largest of the Dominion." 33,000 cases of apples were shipped to South America in 1913, and "this market will be able to absorb all the Dominion can supply for several years to come at satisfactory prices to the growers.

The exports of Canada to the United Kingdom were as follows :-

TABLE XVIII

Canadian Exports : Dried and Fresh Apples.

Fruit	1908	1909	1910	1911
Fresh Apples	$4,422,772	$2,692,233	$4,184,878	$1,598,359
Dried Apples	11,687	41,269	86,084	16,013

Canada imported no green;practically no ($48. worth) dried apples in 1912, while she imported $226,239. worth of oranges, lemons, limes, etc.

Our apple trade, with our sister continent, has been very undeveloped. Now, however, due to the increasing prosperity of South America, exportations of American apples are finding their way into that market. At present the industry is only in its infancy, but it is hoped that the solidity and labor of the American apple will enable it to travel long distances and to hold its own against all comers. Argentina, Brazil and Uruguay all have small importations of our apples, but due to the fact that refrigeration facilities are very inadequate on the few transportation lines between our ports and those of South America, these have been very limited in quantity and very costly when landed in trans-equator ports. American apples are unknown in Chili, as well as in many other parts of the west coast, but with the advent of the Panama Canal, this will probably be remedied. Venezuela imports some of our apples from the Northwest, but it is only at great cost incurred by shipping over the Isthmus ; these are North Pacific apples. Mexico started some importation of our apples some years ago when refrigerator cars could be sent to Mexico City, but due to the unsettled condition of the country and the impossibility of maintaining rapid transportation, this has ceased. The South American markets can never rival England or perhaps Ger-

many as an outlet for apples from this country in quantity, but trade south of the equator promises more proportionately to the apple industry than does any other market in sight. This applies, especially, to best quality North Pacific stock.

The foreign market question is an involved one at best, and with war aftermath conditions in Europe, we cannot tell what exports can be counted upon. France is said to have recovered very rapidly in a commercial way after the disastrous wars of 1870, and apples sold in Europe are always sold to the upper classes, who will be least embarrassed after the war.

If there is any place more than another where business ability in apple marketing will count, it will be in the disposition of apples over the seas.

CONCLUSION

The man who would know how to sell his apples must first study and understand some of the fundamental principles in the exchange of farm products. Apples are not sold today in the same manner as they were sold a hundred years ago. It is not necessary to know how apples were sold a hundred years ago in order to know how they are sold today, that subject can be more quickly, though less intelligently, studied by itself ; but it is necessary to understand the history of the trade in apples in order to judge how they will be sold tomorrow. There is no question in the whole subject of commerce and trade that is more distinctly in a developing stage than is that in the distribution of farm products. Unsettled phases of this distribution are working out their destiny, and the man unaware of this evolution can hardly avoid being left behind in the race of keen competition. The subject of the distribution of farm products needs no advertising to make it a pertinent question -- it is a popular issue already -- it is a cry of the day. This means that reams of biased and baseless opinions and criticisms will pour out from all sources, but it also means that some sort of solution to the problems will be forced under the glare cast by publicity.

The man who would sell his apples intelligently must know the lessons that the past has taught, and must understand the present question with a perspective which is not to be obtained by submerging in petty, individual or even community problems. He cannot implicitly accept the conclusions of others ; these matters are too undefined to allow of settlement by any one opinion. He must realize that there is an excess of apple plantings in America, but he must not stop here, for he would then be no better off than if he firmly believed that there were an insufficient supply of trees. He must follow the matter out. How will these large crops to come affect him, and through what agencies, and what may he do to place himself in the most advantageous position for the necessary competition. This man who would market apples must know who eats his fruit and how much is paid for it, and what else is offered to the man who is to select his apples. He must decide whether to sell his crops alone or with associations, and he must know where his fruit may be most advantageously disposed of.

The man who is thus armed for the competition can hardly fail to succeed, but such arms are not to be easily obtained, and hence the weeding out can take place rapidly.

APPENDIX

TABLE XIX

Apple Exports for Season 1913-14 in Barrels.

By Mahlon Terhune, Produce Exchange, New York City

Ports of Export

1913	New York	Boston	Montreal	Portland	Halifax	St. John
Aug. 2	184	------	------	------	------	------
" 9	258	------	-------	------	------	------
" 16	869	------	------	------	------	------
" 23	1,806	------	------	------	------	------
" 30	q,769	- 45	------	------	------	------
Sept. 6	4,967	534	363	------	------	------
" 13	7,350	820	880	------	3,079	------
" 20	12,818	1,619	1,445	------	23,910	------
" 27	17,785	2,393	7,493	------	23,177	------
Oct. 4	25,812	9,549	18,007	------	7,075	------
" 11	33,465	7,023	23,773	------	43,679	------
" 18	57,934	32,998	29,026	------	47,914	------
" 25	41,549	21,962	22,952	------	14,600	------
Nov. 1	39,209	34,910	20,410	------	35,110	------
" 8	24,848	23,931	25,194	------	16,359	------
" 15	17,036	18,695	21,681	------	8,935	------
" 22	30,719	56,105	27,606	------	15,833	------
" 29	28,199	10,904	21,709	------	37,962	929
Dec. 6	22,929	23,804	37,875	------	18,225	3,048
" 13	23,420	7,917	------	9,900	20,892	2,555
" 20	7,934	5,462	------	8,120	278	2,880
" 27	10,603	9,107	------	8,606	29,174	------
1914						
Jan. 3	17,854	7,304	------	10,426	------	2,516
" 10	14,370	10,060	------	6,657	32,114	1,335
" 17	14,334	7,304	------	4,336	10,124	2,364
" 24	7,652	6,613	------	6,712	22,394	723
" 31	18,361	4,412	------	3,636	9,909	1,771
Feb. 7	12,163	8,257	------	3,632	22,152	2,327
" 14	9,918	5,673	------	2,064	1,748	------
" 21	8,376	1,984	------	2,686	16,683	1,033
" 28	8,619	3,676	--------	2,678	2,164	1,562
Mar. 7	6,231	9,501	------	------	7,956	------
" 14	8,371	5,702	------	6,420	14,200	------
" 21	9,409	1,407	------	3,751	6,159	2,574
" 28	8,331	4,618	------	-----	6,247	------
Apr. 4	2,625	4,406	------	1,928	160	------
" 11	1,884	2,182	------	-----	-----	------
" 18	239	1,614	------	261	-----	------
" 25	160	-----	------	-----	-----	------
Totals	561,390	352,491	258,414	81,813	496,212	25,617
Boxes	739,219	128,127	(Boxes included in above shipments)			

TABLE XX

Apple Exports for Season 1913-14 in Barrels.

By Mahlon Terhune, Produce Exchange, New York City

Ports of Import

1913		Liver-pool	London	Glasgow	Hamburg	Man-chester	Various
Aug.	2	54	-------	130	-------	-------	-------
"	9	50	-------	208	-------	-------	-------
"	16	393	-------	476	-------	-------	-------
"	23	398	17	1,391	-------	-------	-------
"	30	1,192	167	1,455	-------	-------	-------
Sept.	6	2,515	66	3,283	-------	-------	-------
"	13	6,638	649	4,518	-------	324	-------
"	20	12,340	9,669	17,783	-------	-------	-------
"	27	10,315	24,468	14,863	-------	1,202	-------
Oct.	4	22,023	3,457	28,969	2,419	259	3,316
"	11	36,906	22,380	25,520	14,115	-------	9,019
"	18	69,681	28,049	38,542	28,245	1,279	2,076
"	25	37,729	8,142	28,168	16,321	5,000	5,703
Nov.	1	44,713	34,293	13,947	17,896	5,545	13,245
"	8	33,136	20,599	21,790	5,463	5,814	3,530
"	15	28,857	3,978	12,422	14,712	3,307	3,071
"	22	37,844	22,363	28,432	21,285	780	17,550
"	29	28,957	32,375	12,043	12,779	4,339	9,210
Dec.	6	59,295	15,484	19,802	2,812	6,598	1,899
"	13	14,323	10,935	28,046	3,289	-----	8,091
"	20	10,875	2,445	4,354	801	4,713	1,486
"	27	20,159	23,103	5,115	3,566	3,417	2,130
1914							
Jan.	3	13,318	4,770	7,475	5,490	-----	7,047
"	10	18,737	26,628	6,825	3,829	3,608	2,909
"	17	11,043	8,975	8,250	3,189	-----	7,005
"	24	12,268	20,326	4,855	881	-----	5,764
"	31	18,737	6,404	3,324	3,467	213	5,944
Feb.	7	13,204	23,991	4,594	2,797	3,912	33
"	14	7,607	3,012	4,085	2,453	-----	2,246
"	21	8,514	17,265	2,831	1,752	-----	400
"	28	8,166	6,999	2,271	-----	-----	1,263
Mar.	7	7,725	9,588	635	1,866	3,146	708
"	14	15,092	12,756	2,880	2,040	-----	1,925
"	21	9,561	12,904	835	-----	-----	-----
"	28	10,374	5,295	1,768	-----	-----	1,759
Apr.	4	6,276	413	290	-----	-----	2,170
"	11	2,639	210	1,217	-----	-----	-----
"	18	1,212	-----	28	-----	-----	874
"	25	160	-----	-----	-----	-----	-----
Total		643,026	424,175	363,420	171,487	53,456	120,373
Boxes Incl.		211,539	239,913	83,904	211,875	29,921	89,294

TABLE XXI

Comparison of Apple Exports (Trans-Atlantic) 1880-81 to 1913-14

By Mahlon Terhune, Produce Exchange, New York City

					Ports of Export		
	New York	Boston	Montreal	Portland	Halifax & St. John	Various	Annapolis
1880-81	599200	510300	145276	39908	24250	9972	-----
1881-82	75889	65093	56433	6497	13805	----	21535
1882-83	169570	102409	64190	16890	18542	3900	19893
1883-84	53048	7145	7445	9811	3758	325	-----
1884-85	256314	307130	84487	71460	42207	----	8612
1885-86	466203	221724	68716	87301	37982	186	3161
1886-87	175595	303479	106713	100569	94606	----	26965
1887-88	275696	163916	93058	25215	32652	----	17884
1888-89	474337	382199	201307	145825	94691	860	18190
1889-90	169557	132569	161526	122433	53627	----	37030
1890-91	76503	23123	182095	80365	89190	----	-----
1891-92	537247	339964	320457	163145	87379	2174	-----
1892-93	218037	204138	429243	235395	116725	----	-----
1893-94	29396	4796	56255	49344	35058	----	-----
1894-95	221398	523123	273353	155878	264410	----	-----
1895-96	230705	84771	128027	141955	165797	----	-----
" Bxs.	13610	------	1861	------	------	----	-----
1896-97	570327	1015029	700274	221350	409733	3133	-----
1897-98	361894	176322	163313	126261	82208	3998	-----
1898-99	158213	237395	404573	143892	277014	----	-----
" Bxs.	176107	------	------	4529	1349	----	-----
1899-00	306889	177660	285528	148829	360799	----	13400
" Bxs.	149515	------	------	------	------	----	-----
1900-01	240635	409979	249219	225396	200000	----	20801
" Bxs.	203333	------	------	------	------	----	-----
1901-02	154223	143851	122465	100419	271230	----	-----
" Bxs.	296427	------	------	------	------	----	-----
1902-03	732764	838815	476425	338080	156675	----	-----
" Bxs.	212587	------	------	------	------	----	-----
1903-04	1120284	676593	732044	361364	594635	----	20414
" Bxs.	388975	------	------	------	------	----	-----
1904-05	654443	680398	375085	304921	372369	8500	15907
" Bxs.	66001	------	20529	738	53	----	-----
1905-06	609847	440440	551914	247516	336414	----	-----
" Bxs.	416266	------	------	------	------	----	-----
1906-07	668866	521241	399161	375345	342476	----	-----
" Bxs.	252011	------	------	------	------	----	-----
1907-08	484779	431852	624159	423929	504809	----	-----
" Bxs.	285206	------	------	------	------	----	-----
1908-09	363327	188914	353146	89403	560887	----	16908
" Bxs.	520792	------	------	------	------	----	-----
1909-10	398944	263623	587287	240820	682515	----	39265
" Bxs.	460362	------	------	------	------	----	-----
1910-11	651738	487896	172729	110339	211275	----	-----
" Bxs.	959980	146630	------	------	------	----	-----
1911-12	551663	447685	270951	236602	1271126	----	17574
" Bxs.	456278	130757	------	------	------	----	-----
1912-13	982318	551607	337670	280929	808473	----	-----
" Bxs.	1353235	28623	------	3133	------	----	-----
1913-14	561380	352491	258414	81813	521829	----	----

TABLE XXII

Comparison of Apple Exports (Trans-Atlantic) 1880-81 to 1913-14

By Mahlon Terhune, Produce Exchange, New York City

(See Table XXI)

Ports of Import

	Liverpool	London	Glasgow	Hamburg	Various	Total
1880-81	839444	177936	216391	-------	95036	1328806
1881-82	133784	46147	59266	-------	55	239252
1882-83	253432	46925	81269	-------	13318	395594
1883-84	46661	4843	29685	-------	343	81532
1884-85	491898	123081	137631	-------	16590	769210
1885-86	537695	147102	176445	-------	24031	885273
1886-87	468553	187840	138756	-------	12775	807924
1887-88	346557	104072	139517	-------	18275	608421
1888-89	790502	279374	272068	-------	64465	1407409
1889-90	418850	128248	116449	-------	14115	677762
1890-91	252548	116705	80772	-------	1260	451285
1891-92	917535	224356	282553	-------	25892	1450336
1892-93	798291	174405	220790	-------	10052	1203538
1893-94	101205	32581	38524	-------	2530	1174841
1894-95	853198	388535	173312	-------	23110	1438155
1895-96	410596	196184	127942	-------	16533	751255
" Bxs.	11342	2458	1771	-------	-----	15471
1896-97	1581560	716771	411575	117105	92835	2919846
1897-98	490138	198281	123828	88780	12969	913996
1898-99	689036	271342	180336	22861	57512	1221087
" Bxs.	81484	87188	9226	1531	2556	181985
1899-00	644857	319869	211555	72150	44690	1293121
" Bxs.	58922	70724	13118	4826	1925	149515
1900-01	814100	251322	225061	26728	28919	1346030
" Bxs.	60776	111307	22925	1325	7000	203333
1901-02	408655	229808	129312	18296	6077	792128
" Bxs.	109715	153653	20449	2929	9681	296427
1902-03	1445347	457778	398271	146671	94692	2542759
" Bxs.	69020	126730	11782	4627	488	212587
1903-04	1616037	869572	474950	283212	261563	3505334
" Bxs.	107260	188463	24302	23486	45284	388975
1904-05	1130220	552692	394090	158568	176053	2411623
" Bxs.	17154	32254	24484	------	13429	87321
1905-06	943652	486657	351375	180795	223652	2186131
" Bxs.	127199	196372	24067	14656	53972	416266
1906-07	1084810	464240	404838	163523	189678	2307089
" Bxs.	87067	128024	10307	3878	22735	252011
1907-08	1179323	593110	445726	104882	146487	2469528
" Bxs.	98609	151363	11958	2208	21068	285206
1908-09	674700	406253	341389	14910	142363	1572615
" Bxs.	208383	243969	41708	3263	23469	520792
1909-10	878052	615354	452853	73931	192224	2212474
" Bxs.	145486	211873	45388	22516	35099	460362
1910-11	649055	446672	324876	71773	142601	1634977
" Bxs.	361268	501964	94465	77981	70932	1106610
1911-12	962262	756056	537306	283065	229338	2768027
" Bxs.	189334	226094	44242	70634	56531	587035
1912-13	1125670	740145	548068	258543	288571	2960997
" Bxs.	389084	586566	106982	172208	198457	1453577
1913-14	643026	424175	363420	171487	173829	1775937
" Bxs.	211539	240613	83804	211775	119515	867346

TABLE XXIII

Yearly Range of Apple Prices at Boston.

Year	High	Low
1891	$ 6.00	$ .50
1892	5.00	.75
1893	5.00	.50
1894	6.50	.50
1895	4.00	1.00
1896	5.00	.35
1897	4.50	.50
1898	5.00	.35
1899	5.00	.75
1900	5.00	.50
1901	5.00	.50
1902	5.50	.50
1903	$4.00	$ .50
1904	4.50	.75
1905	6.00	.75
1906	6.00	1.00
1907	6.00	1.00
1908	4.50	.75
1909	6.00	1.50
1910	5.50	1.00
1911	6.00	1.00
1912	6.50	1.00
1913	5.50	1.25

Figures compiled for writer by L. W. DePass, Statistical Dept., Boston Chamber of Commerce.

TABLE XXIV

Yearly Receipts of Apples at Boston.

Year	Barrels	Boxes
1885	519,217	-----
1886	645,217	-----
1887	390,027	-----
1888	588,822	-----
1889	424,461	-----
1890	206,003	-----
1891	426,678	-----
1892	602,092	-----
1893	314,126	-----
1894	590,143	-----
1895	420,650	-----
1896	871,617	-----
1897	712,144	-----
1898	447,093	-----
1899	522,539	-----
1900	589,016	-----
1901	427,398	-----
1902	1,011,287	-----
1903	1,189,766	-----
1904	1,157,956	-----
1905	928,897	-----
1906	827,838	-----
1907	660,949	-----
1908	607,937	-----
1909	432,369	-----
1910	818,969	-----
1911	778,121	-----
1912	808,487	222,029
1913	591,931	219,395
1914	509,220	212,688

Figures compiled for writer by L. W. DePass, Statistical Dept., Boston Chamber of Commerce.

TABLE XXV

Disposition of Money Paid for Farm Crops, 1911.

B. F. Yoakum, World's Work, 25:183-91.

"Approximated from Government Figures"

Producer received	$6,000,000,000.	46.1%
Railroads "	495,000,000.	3.8
"Legitimate" Expense of Selling	1,200,000,000.	9.2
Waste in Selling	1,560,000,000.	12.0
Dealers & Retailers	3,745,000,000.	28.9
Total Price Paid by Publ.	13,000,000,000	100.0

TABLE XXVI

Amounts of Fruits Handled by Prominent Primary Markets, 1912-13. (In Barrels)

Boston	785,663	Cincinnati	309,158
St. Louis	295,996	Louisville	159,101
SanFrancisco	111,601		

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TABLE XXVII

Prices and Rate of Increase in Farm Products, 1889-1909

		Average Value		Per Unit Increase		
Crop	Unit	1899	1909	Amount	%	Increase in Production
All crops					66.6	83.0%
All Cereals					76.5	79.8
Hay & Forage	Ton	$6.11	$8.45	$2.34	38.4	70.2
Potatoes	Bu.	.35	.42	.07	18.8	69.2
Small Fruits	Qt.	.054	.07	.016	30.1	19.8
Orchard "	Bu.	.39	.65	.26	65.3	68.2
Nuts	Lb.	.04	.07	.03	46.5	128.1
Population						21.0

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TABLE XXVIII

Monthly Percentage of Annual Sales of Apples and Oranges

Month	Boston		Cincinnati	
	Oranges	Apples	Oranges	Apples
July		1.7	1.2	1.5
August		3.3	3.3	2.0
September	.2	6.3	8.9	.9
October	1.4	31.7	23.8	1.1
November	13.3	32.8	23.6	6.2
December	31.3	12.0	16.4	29.3
January	17.7	3.9	2.7	11.1
February	18.2	3.8	6.4	15.7
March	13.0	3.5	6.9	13.8
April	2.8	1.7	4.7	8.2
May	1.4	1.3	1.7	6.2
June	.7	.1	.4	4.0

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TABLE XXIX.

United States Fruit Imports and Exports.

1910	Total Value Fruit Imports	$23,220,792.
	" " " Exports	18,504,591.
	Percentage of Fruit Crop Exported	8.3%

Percentage of All Fruits Imported
Compared to Total Agr. Imports

1900	1910	1912
4.2%	3.6%	4.0%

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TABLE XXX

Monthly and Yearly Receipts of Apples in New York City (In Barrels), 1893-1913.

	August	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
1893-1894	4,632	20,461	57,068	66,160	25,678	18,692	15,462
1894-1895	12,046	33,800	125,000	159,527	58,419	33,032	27,942
1895-1896	33,510	75,394	152,419	164,463	110,638	50,327	58,782
1896-1897	51,947	188,135	263,491	273,052	165,494	115,096	134,113
1897-1898	38,713	71,433	203,538	196,477	81,695	70,649	62,560
1898-1899	30,428	76,807	161,876	117,608	89,251	49,578	37,323
1899-1900	47,918	102,955	206,216	185,785	113,277	75,164	72,156
1900-1901	23,116	82,426	176,411	189,521	101,193	99,087	69,548
1901-1902	18,379	53,611	127,191	106,371	57,021	51,597	36,013
1902-1903	68,007	154,475	287,936	255,942	166,971	130,626	122,687
Yearly Av. for 10 Years	33,370	85,950	176,115	171,491	96,964	69,385	63,659
1903-1904	95,142	246,684	435,950	399,130	193,206	144,919	165,102
1904-1905	85,332	284,112	309,135	337,336	168,721	143,071	122,565
1905-1906	143,052	252,056	367,638	281,482	152,945	119,309	82,084
1906-1907	174,637	255,600	478,323	413,566	223,554	223,469	145,847
1907-1908	60,488	137,729	350,529	364,490	171,099	168,649	117,938
1908-1909	121,641	310,289	447,895	337,580	217,601	137,683	92,688
1909-1910	64,305	183,892	393,288	406,772	248,797	131,709	138,119
1910-1911	78,678	196,597	538,630	416,374	208,490	127,015	115,654
1911-1912	75,922	199,039	380,569	314,330	301,257	176,639	171,219
1912-1913	41,335	171,798	636,626	464,450	223,096	201,154	193,846
Yearly Average for 10 Years	94,053	223,780	427,858	373,551	210,877	157,362	134,506

In the above table boxes have been reduced to barrels, three boxes to a bbl.

"Better Fruit",. June, 1914.

TABLE XXX (Continued)

Monthly and Yearly Receipts of Apples in New York City (In Barrels), 1893-1913.

	March	April	May	June	July	Total
1893-1894	12,451	8,845	5,414	971	1,430	237,264
1894-1895	36,522	24,608	10,442	2,193	20,177	548,708
1895-1896	45,293	30,209	13,955	1,497	12,017	748,504
1896-1897	125,945	74,936	24,654	9,683	19,813	1,446,396
1897-1898	71,913	47,521	25,532	7,046	5,396	882,473
1898-1899	36,752	33,148	16,368	1,547	11,276	661,962
1899-1900	60,291	38,498	16,528	2,860	3,517	925,165
1900-1901	69,917	55,282	25,959	3,507	5,443	901,410
1901-1902	36,671	43,463	18,328	5,171	10,576	564,392
1902-1903	160,567	96,626	62,503	33,665	23,721	1,563,726
Yearly Average for 10 Years	55,632	45,314	21,968	6,814	11,337	847,996
1903-1904	166,698	108,761	56,203	31,811	8,016	2,051,622
1904-1905	193,460	130,367	70,923	20,437	22,236	1,887,695
1905-1906	80,466	49,034	27,802	10,987	7,688	1,574,543
1906-1907	173,133	87,412	39,442	12,594	1,917	2,229,494
1907-1908	160,210	108,194	75,719	33,162	13,839	1,762,046
1908-1909	87,198	61,486	32,369	11,837	5,470	1,863,737
1909-1910	162,011	98,764	51,063	19,548	6,403	1,904,671
1910-1911	105,385	74,361	48.107	23,036	5,556	1,937,883
1911-1912	138,045	102,727	52,757	22,654	5,335	1,880,503
1912-1913	217,240	191,250	93,969	45,177	16,706	2,496,647
Yearly Average for 10 Years	148,385	101,236	54,835	23,125	9,317	1,958,884

In the above table boxes have been reduced to barrels, three boxes to a bbl.

"Better Fruit", June, 1914.

TABLE XXXI

Average Prices of Apples in New York for Twenty Years.

	Total Receipts (Barrels)	Total Value	Average Price Per Bbl.	
1893-1894	234,863	$ 805,873	$3.43	$2.62
1894-1895	526,338	1,368,716	2.60	
1895-1896	736,487	1,627,907	2.21	
1896-1897	1,426,546	2,018,411	1.41	
1897-1898	877,077	2,336,934	2.66	
1898-1899	650,686	2,116,021	3.25	
1899-1900	921,648	2,147,728	2.33	
1900-1901	895,967	2,238,004	2.50	
1901-1902	553,816	2,057,679	3.72	
1902-1903	1,540,005	3,196,294	2.08	
1903-1904	2,043,606	4,880,324	2.39	$2.87
1904-1905	1,865,459	3,895,384	2.09	
1905-1906	1,566,855	5,176,749	3.30	
1906-1907	2,227,577	5,889,810	2.64	
1907-1908	1,687,719	5,150,687	3.05	
1908-1909	1,858,267	5,992,356	3.22	
1909-1910	1,898,268	6,045,390	3.18	
1910-1911	1,932,327	6,904,624	3.57	
1911-1912	1,875,168	5,028,725	2.68	
1912-1913	2,438,606	6,320,756	2.59	

TABLE XXXII

Average Monthly Receipts of Apples in New York.

Month	1893-1903		1903 to 1913	
Month	Average Receipts	Per Cent of Total	Average Receipts	Per Cent of Total
August	33,370	3.94	94,053	4.80
September	85,950	10.14	223,780	11.42
October	176,115	20.77	427,858	21.84
November	171,491	20.22	373,551	19.07
December	96,964	11.43	210,877	10.77
January	69,385	8.18	157,362	8.03
February	63,659	7.51	134,506	6.87
March	65,632	7.74	148,358	7.57
April	45,314	5.34	101,236	5.17
May	21,968	2.59	54,835	2.80
June	6,814	.80	23,125	1.18
July	11,337	1.34	9,317	.48

"Better Fruits", June, 1914.

TABLE XXXIII.

Prices of Different Varieties by Years and Percentage of Increase in the Last Ten Years over the Previous Ten Years.*

	Alexander	Fall Pippin	Fameuse	Gravenstein	Maiden Blush	McIntosh	Oldenburg	Twenty Ounce
1893-1894	---	2.54	3.28	2.64	2.40	---	2.62	2.81
1894-1895	2.75	2.02	2.45	1.84	2.01	---	1.84	2.12
1895-1896	2.32	1.73	3.16	1.86	1.62	---	1.66	1.71
1896-1897	1.57	1.30	1.49	1.53	1.12	---	1.43	1.33
1897-1898	2.25	1.97	---	2.07	2.20	---	2.24	1.96
1898-1899	2.47	2.31	3.67	2.09	2.56	---	2.25	---
1899-1900	2.03	1.53	2.35	2.02	1.69	---	1.68	1.73
1900-1901	1.92	1.63	2.47	2.00	1.73	---	1.95	1.75
1901-1902	3.52	3.37	4.06	3.01	---	---	3.36	3.52
1902-1903	2.32	1.67	1.76	1.87	1.71	---	2.85	1.80
1903-1904	2.93	1.93	2.77	2.52	1.96	---	2.35	2.06
1904-1905	2.26	1.85	2.04	1.98	1.76	3.00	1.93	2.05
1905-1906	2.31	2.55	3.06	2.78	2.46	3.90	2.74	2.84
1906-1907	2.93	2.39	2.76	2.54	2.42	3.25	2.62	2.24
1907-1908	3.87	2.70	3.00	2.73	2.88	3.65	3.76	2.99
1908-1909	3.10	2.73	2.96	2.80	2.57	3.75	2.65	2.74
1909-1910	4.04	3.31	3.71	2.75	2.62	3.95	3.16	3.13
1910-1911	3.71	3.12	3.37	3.05	3.36	3.89	3.05	3.48
1911-1912	2.98	2.34	---	2.32	2.06	3.00	2.45	2.57
1912-1913	3.01	2.59	---	2.69	2.32	3.22	2.46	2.56
Av. for 20 yrs.	2.75	2.28	2.84	2.35	2.18	---	2.45	2.39
Av. 1893-1903	2.35	2.01	2.74	2.09	1.89	---	2.19	2.08
Av. 1903-1913	3.11	2.55	2.96	2.62	2.44	3.51	2.72	2.67
Percentage increase in last 10 yrs. over previous 10 yrs.	32.3	26.9	8.0	25.4	29.1	---	24.2	28.4

*Blanks indicate no quotations for that year.

TABLE XXXIII (Cont.)

Prices of Different Varieties by Years and Percentage of Increase in the Last Ten Years over the Previous Ten Years.*

	Baldwin	Ben Davis	Esopus Spitzenberg	Northern Spy	Rhode Island	Russet	Tompkins King	Pound Sweet
1893-1894	3.90	3.05	5.04	3.80	3.39	4.44	4.02	---
1894-1895	2.78	4.00	3.96	2.86	3.01	3.07	2.56	---
1895-1896	2.37	2.76	1.80	2.26	2.47	2.73	2.33	---
1896-1897	1.53	2.71	1.82	1.93	1.69	2.08	1.47	1.18
1897-1898	2.72	3.13	---	2.83	2.87	2.88	3.15	---
1898-1899	3.72	4.12	---	3.63	4.17	3.49	3.20	---
1899-1900	2.77	3.06	3.51	2.71	2.55	3.16	2.51	---
1900-1901	2.70	2.87	3.78	2.97	2.49	3.04	2.73	1.93
1901-1902	3.46	3.52	4.46	3.20	3.65	2.92	4.17	2.91
1902-1903	1.99	2.24	2.73	2.07	2.14	2.17	2.24	1.50
1903-1904	2.23	2.33	2.90	2.59	2.32	2.30	2.80	1.86
1904-1905	2.07	2.19	2.54	2.42	1.94	2.52	2.52	1.50
1905-1906	3.88	4.02	4.25	4.64	3.79	4.55	4.15	2.75
1906-1907	3.26	3.29	3.24	3.29	2.94	4.09	3.03	---
1907-1908	2.86	2.62	3.30	3.10	3.14	1.98	3.24	2.62
1908-1909	4.16	3.26	4.14	4.36	3.61	3.52	3.71	2.12
1909-1910	3.19	3.06	2.89	3.17	3.44	2.71	3.43	---
1910-1911	4.02	3.60	---	4.42	4.26	3.76	3.54	---
1911-1912	2.61	2.41	3.14	3.25	2.86	---	2.83	---
1912-1913	2.66	2.46	3.25	3.35	2.71	2.42	2.55	2.10
Av. for 20 yrs.	2.94	3.04	3.34	3.14	2.97	3.04	3.01	2.05
Ave. 1893-1903	2.79	3.15	3.39	2.83	2.84	3.00	2.84	1.88
Av. 1903-1913	3.09	2.92	3.29	3.46	3.10	3.09	3.18	2.16
Percentage increase in last 10 yrs. over previous 10 yrs.	10.8	7.3	2.9	22.3	9.2	3.0	12.0	14.9

*Blanks indicate no quotations for that year.